

# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

JUNE 1946



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Reo, the truck that grew up with gasoline, helps this industry maintain timetable deliveries on local and long-distance routes. Reo is built for capacity loads . . . the massive frames are cold-riveted for extra strength, and axles, wheels and springs are the heavy-duty type. Reo is designed for dependable performance . . . the economical, precision-built engines provide

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# COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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Acceptance under the Act of June 5, 1934, authorized December 18, 1934

Published monthly

Member C.C.A.

Vol. LXXI Philadelphia, June, 1946 No. 4

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Los Angeles 1, Calif.—6000 Miramonte Blvd., Phone Lafayette 5525

SUBSCRIPTION RATES: United States and United States Possessions and all Latin-American countries—\$5.00 per year. Canada and Foreign—\$10.00 per year. Single copies—50 cents. April issue, \$1.00.

Owned and Published by

❶ CHILTON COMPANY (INC.) ❶

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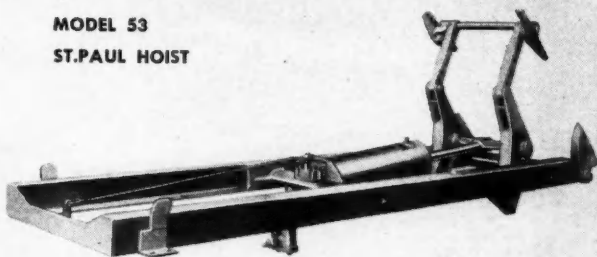
PAUL WOOTON, Washington Member of the Editorial Board

JUNE, 1946

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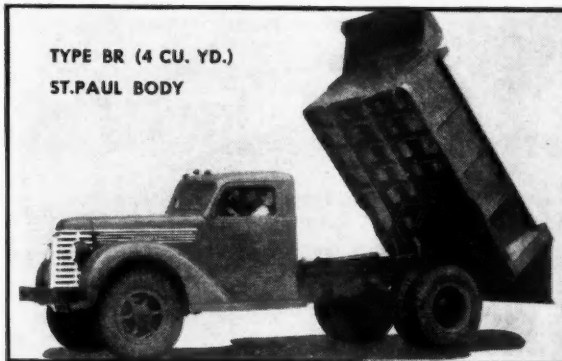
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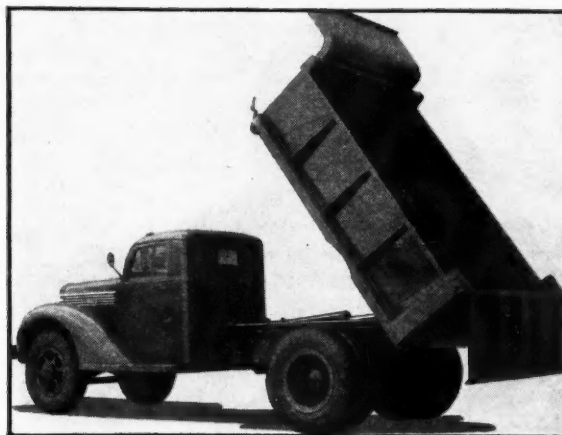
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ONE OF 34 INTERNATIONALS IN THE WILLERS FLEET



MRS. WILLERS LEAVES HOME FOR HER OFFICE

## LADY TRUCK-LINE OPERATORS

### THEY HOLD THEIR OWN AND MORE, IN A HARD-DRIVING, HE-MAN BUSINESS

Sheep, hogs and cattle aren't dainty critters to truck-haul from stockyards to packing plants. Petroleum products don't scent the air with the delicate odors of French perfumes. Truck transport is a hard-driving, tough-talking business.

It's a man's realm, truck transport, but give that realm a second look and this is what you find—important American truck lines are sometimes operated by attractive women.

One of these women is Mrs. Leone Willers, owner of Willers Truck Service, Sioux Falls, S. D. Sixteen years ago Mrs. Willers started with a second-hand truck. She drove it herself.

Today Willers Truck Service operates 34 International Trucks and 35 livestock semi-trailers, in eight states. Forty driv-

ers and five shop mechanics are employed. The fleet has hauled 10,000 animals in a single night.

Another lady truck-line operator is Mrs. Mabel Herman, owner of the Herman Oil Transport Company, Fremont, Nebr., who became a truck operator when an accident robbed her of her husband. Mrs. Herman, like Mrs. Willers, started with a single truck.

By 1939 Mrs. Herman had become the leading petroleum transporter in Nebraska. Her biggest semi-trailers haul 5,400 gallons of oil on a single run. Each truck and semi-trailer averages 12,000 miles of highway travel a month. She employs 30 drivers.

Yes, these two ladies operate truck lines. They talk to drivers, mechanics, shippers and consignees in the language

that each understands.

*That's one side of their personalities.* The other is charm, femininity, and taste in dress and decoration. And note this evidence of business acumen:

These ladies operate International Trucks almost exclusively, because Internationals deliver such economical, trouble-free performance.

And both of these ladies know the worth of truck service that keeps trucks operating at minimum cost per ton-mile—*International Service*, supplied by the nation's largest company-owned branch organization and by International Dealers everywhere. **IH**

Motor Truck Division

INTERNATIONAL HARVESTER COMPANY  
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INTERNATIONAL  TRUCKS

Tune in "Harvest of Stars" Sunday, 2 p.m.  
Eastern Daylight Time, NBC Network.



MRS. HERMAN, RIGHT, ENTERTAINING FRIENDS



INTERNATIONAL TRUCK HAULING 5,400 GALLON SEMI-TRAILER

## This Month's

## PAYLOAD



As a time-saving service, this and following pages contain digests of the leading articles in this issue

## Custom-Styled Postwar Bodies



**P**RIOR to the war, COMMERCIAL CAR JOURNAL presented, as a service to its readers, a series of articles on truck body design entitled, "Body of the Month," written by E. M. Westberg. These articles described attractive and utilitarian truck body designs with specifications to permit construction, if desired. The designs were original and were offered by the designer as suggestions for fleet operators interested not only in improving the appearance of their fleets but also in obtaining greater payloads.

During the war, invaluable truck body experience has been gained, and lessons learned, by fleet operator and body designer.

As a service to its readers, COMMERCIAL CAR JOURNAL desires to see the experiences gained by both operator and designer, coordinated and developed to the fullest extent. Consequently, Mr. Westberg again has been retained to prepare a new series of truck body design articles.

The basis of all designs will be data obtained and compiled from the questionnaire accompanying this article. All that is required is for each fleet operator to fill in the data pertaining to his operation, such as type of body required, loading requirements and so on. The questionnaire should be mailed to the Editor, as indicated on that page. (Turn to Page 42, please.)



## Overcharge — A Summer Enemy



by W. H. CROUSE, Delco-Remy Division, Anderson, Ind.

**A**BATTERY is more apt to become overcharged in the summer than any other season.

When a battery is producing current, the sulphuric acid in the electrolyte enters into chemical action with the lead compounds in the battery plates. The sulphuric acid leaves the electrolyte. When used up, the battery must be recharged.

During the recharging, sulphuric acid reappears in the electrolyte . . . the battery reaches a fully charged condition. If charging continues beyond this point, the battery will be overcharged. It will gas and excessive gassing will ruin a battery . . . evidence is excessive water consumption.

As a first step in correcting the condition, find out whether the overcharge is being caused by troubles in the generator or regulator, or by temperature. If battery is at high temperature, it will act as though it is only partly charged even though it is fully charged. The regulator will, therefore, permit the charging rate to remain excessively high.

To take care of this battery peculiarity, many manufacturers specify lower voltage regulator setting.

If overcharge is not due to high temperature, then a simple check may be made to determine whether it is resulting from defects in the generator or regulator. (Turn to Page 40, please.)



## Lube Board — Center of Maintenance



by BENTON L. TRERISE, Langendorf United Bakeries, Inc.

**T**RAVELING two million miles a year, our 150 bakery trucks in the Los Angeles Division employ a fast, efficient method of governing maintenance routine. The lube board has been the answer to our prayers for almost 10 years. Its simplicity, and the ease with which it can be understood and worked, has saved Langendorf United Bakeries, Inc., many dollars, improved preventive maintenance, and added longer life to our fleet.

The lube board carries a set of two cards for every vehicle in the fleet; a Service Operations card and a Gas-Oil-Miles Record card, placed one above the other and held in a tin rack.

At the end of the day, when the entries have been taken from the master Gas-Oil-Miles card kept at the gas pump and transferred to the individual trucks' Gas-Oil-Miles cards on the lube board, the lube man can tell when the truck is ready for its regular 1500-mile lubrication. The motor man can tell, by looking at oil consumption, when a truck is consuming too many quarts of oil and, consequently, should have an engine overhaul.

A great time saver is the fact that all specialists, in making their daily checks, can approximate the number of trucks due for each of the three major inspections and plan their work accordingly. (Turn to Page 54, please.)



## Coupling Failures Prevented



**R**ECOGNIZING the fact that many a loaded trailer has gone crashing to the ground because of an improper coupling at the fifth wheel, two North Carolina motor freight lines have developed simple and inexpensive preventive methods.

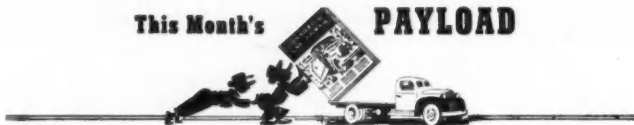
Akers Motor Lines, Inc., has installed curved reinforced concrete curbing wherever trailers are parked. Not only does the curbing provide a positive stop against the trailer's tendency to back up when coupled, but it also protects both trailer end and loading dock from impact injury.

Atlantic States Motor Lines' solution came in the form of a slightly convex trough of reinforced concrete at ground level. These troughs are installed wherever trailers are parked in large

(TURN TO NEXT PAGE, PLEASE)



## This Month's PAYLOAD



(CONTINUED FROM PAGE 35)

numbers, and provide adequate footing to assure proper alignment at all times. (Turn to Page 53, please.)



### Shop Plans for a 1000-vehicle fleet

by ELLIS W. TEMPLIN, Los Angeles Dept. of Water and Power

**I**N PLANNING for our new shop, one of the first considerations was the volume of work and type of operations required. From the latest annual report of the section, covering one full year's activity, we secured a breakdown of operations. Basing our decision principally on the major items listed, we determined the equipment and tools needed to implement the shop operations.

In planning the layout and flow of work through the shop, there are six major items which must be carefully considered: Problems of unit or parts handling, shop operating efficiency, power use efficiency, shop maintenance efficiency, orderliness, ease of supervision.

As a result of careful consideration of all these and other factors, we evolved the plans shown. The main building is to be a modern one-story, fire-resistant structure with concrete floor, masonry walls, saw-tooth roof, sprinklers throughout. Its dimensions are approximately 265 x 160 ft.

The natural question is, "Will the investment in the new buildings and equipment be profitable?"

This question was given special study. Taking into account the proposed additional new shop equipment, most of land and building, the shop rates would increase 17 cents an hour. The considered conservative opinion of the committee was that the new facilities would improve the overall working efficiency of the shop by at least 32 per cent and possibly 50 per cent. In addition, it has been estimated that approximately \$350 can be saved annually by housing vehicles indoors. (See Page 62.)



### Truck Tire Leasing Prospects Poor



by LEONARD WESTRATE, CCJ Detroit News Editor

**R**ECENTLY, COMMERCIAL CAR JOURNAL went to the major tire companies to find out why no tire leasing program, similar to that carried on with bus lines, has not been developed for truck fleet operators. These representatives stated that no such leasing program is contemplated and explained why.

The reason that tire companies will enter into tire leasing agreements with bus lines and not with truck operators is that bus operations are pretty well defined and controlled.

Trucks, on the other hand, operate on a very flexible basis. Overloading is prevalent, tire maintenance sometimes is not too good, they are free to travel over all kinds of roads and terrain—and the operation generally is extremely difficult to control.

Another angle the tire companies are not overlooking is that if tire leasing should become general, the truck tire dealer, with the valuable services he performs, probably would be washed out of the picture, since few have facilities to service a lease contract.

A cardinal point in the tire companies' view on tire leasing plans is that such an agreement can effect no savings that the truck operator cannot himself achieve through a careful tire PM.

They say that the best bet for the trucker is to buy his tires at the best possible price he can bargain for and then follow a careful program of tire maintenance. (See Page 45, please.)

## Consolidated Builds Reefer-Freighters



by WARREN E. CRANE

**P**ETER JOLLY, head of Consolidated Freightways' body shop has effected a number of striking innovations in truck and trailer body design. By unique methods, he and his men have eliminated all excess weight by as much as 2000 lb. per body without sacrificing strength or durability. This, in a truck and trailer combination, nets a weight saving by as much as 4500 lb., in comparison with comparable standard equipment.

Peter Jolly also designed a new type floor for truck and trailer bodies. It is made of aluminum, channeled construction, and considered to be one of the most important forward steps in body construction since the innovation of aluminum.

Wood racks take the actual wear and tear. They are hinged at the sides and stand out of the way during cleaning. They are easily replaceable when worn. Channeling also permits ventilation.

All bodies have a dry-ice blower built into the front panel. A folding bulkhead is carried as part of standard equipment. The bulkhead may be stationed in any part of the body, effectively sealing off perishable from imperishable freight. (Turn to Page 70, please.)



### Eyeing Trade-Trained Teen-Agers



by HARRIE H. BIERMAN

**A**MONG the fleet manager's serious labor problems is the shortage of good "helper" material. For the fleet boss who has such a problem, there is likely to be a solution: Trade-trained youngsters turned out by vocational schools. Partially supported by government funds, participating institutions must maintain instruction standards prescribed by Federal Office of Education.

A certain amount of classroom work is integrated with practical shop experience. Prospective trainees are carefully screened to determine their fitness.

First year subjects include: Shop layout, tools and equipment; wheels, rims and tires; front axles; springs, shock absorbers and wheel suspension; steering gears; rear axles; brakes; universal and propeller shafts; clutches and transmissions.

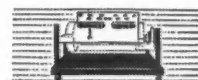
Second year subjects cover engines, carburetion, fuel feed, and all branches of automotive electricity, including battery testing and maintenance.

How do these school-trained teen-agers prove up in fleet shops? Fleet shop managers who have given them a trial are highly pleased.

The pay rate for automotive course students runs from \$10 a week for part time to a high of \$50 for full employment. The average is \$20 to \$25. (Turn to Page 48, please.)



### Rebuild-Test Stand Speeds Overhauls



by EMERY B. STROUD, Cleveland Cartage Co., Cleveland

**A**BOUT two years ago, our chief mechanic built a portable engine stand to speed up and facilitate the various phases of engine overhauling. Using scrap picked up around the garage, he made it in about 24 hours. It is mounted on rollers and can be moved where desired.

(TURN TO PAGE 188, PLEASE)



# EDITORIAL

## *Should the Truck Industry Celebrate Its Golden Jubilee in 1948?*

**E**ARLY this month Detroit set aside the better part of two weeks to celebrate the Golden Jubilee of the automobile industry. Fifty years ago—that would be 1896—Henry Ford and Charles B. King publicly drove cars of their own making on the streets of Detroit. These historical events give Detroit a valid reason to celebrate 50 years of automotive progress.

\* \* \*

It should not be assumed, however, that 1896 marked the birth of the automotive industry in the United States. There were many public demonstrations of automotive vehicles prior to 1896 in many parts of the country. The records also show that a number of automobile companies were formed before that date. Automotive pioneers take the position that it is impossible to fix on a definite date which could be considered the authentic date on which the automotive industry was born.

\* \* \*

*Does 1896 mark the beginning of the truck industry in the United States? Digging back into the files of The Horseless Age, the first issue of which was published in November, 1895, the writer came up with some interesting data which permit the drawing of some conclusions.*

\* \* \*

In the first issue of *The Horseless Age* there are two mentions of "business wagons," as trucks were called back in those days. Richard F. Stewart, of Pocantico Hills, N. Y., was reported "experimenting on a method of applying power" to a business wagon, using a 2-hp. Daimler motor. A sketch of the business wagon accompanies the item. Subsequent issues fail to report the result of Mr. Stewart's efforts.

In that same issue, Gerry Schleicher, of Schleicher & Sons, piano manufacturer of Stamford, Conn., was said to have "about completed a business wagon, one of the novel features of which is the wheels." These wheels were of corrugated stamped steel surrounded by a heavy rim of the same material. The hind wheels weighed "about 100 lb. apiece." Mr. Schleicher apparently realized he had to save weight somewhere and so his "hubs are of aluminum, securely bolted to the steel." There is no evidence to indicate what happened to this corrugated contraption. However, it may have been the first of the disk wheels applied to motor vehicles.

\* \* \*

The January, 1896, issue provides proof that use of the new automotive vehicle for business purposes was not being overlooked by the pioneers. The C. E. Woods Co., Chicago electrical engineers, had spent "a large amount of time and money investigating the motor vehicle question purely from a practical and engineering point of view." This "careful inquiry into public sentiment and conditions convinced the Woods company that the first demand for motor vehicles is for light delivery wagons; then for public conveyances; then for liveries where the carriages can be rented by the public at large, and probably, after an accumulation of experience in these directions, heavy trucks will be considered." The illustrations accompanying the item from which the above is taken, included a drawing of an "electric delivery wagon."

\* \* \*

Evidently the Woods company was not able immediately to justify its findings with production and sales because the credit for the "first com-

mercial electric delivery wagon in the U. S." fell to another company, as will be shown later on in this chronological account. Eventually Woods did become one of the largest builders of electric vehicles.

\* \* \*

The gasoline engine and electric motor were competing for public favor. The May, 1896, issue reports that "The Lengert Co., well known wagon builders of Philadelphia, Pa., have entered in the *Cosmopolitan* race a motor delivery wagon, which they are making preparations to manufacture in considerable numbers." It had a single cylinder engine with a bore of 5 $\frac{3}{8}$  in. and a stroke of 5 $\frac{1}{2}$  in. Built "on an original plan" it gave "variable horsepower from 4 hp. to 13 $\frac{1}{2}$  hp." The horsepower must have been variable indeed because the vehicle never showed up in the *Cosmopolitan* race.

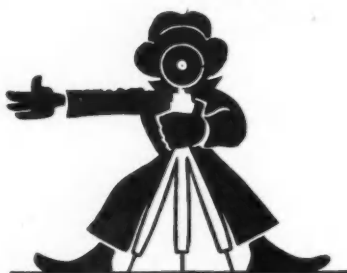
\* \* \*

*The first Horseless Age mention of a steam-propelled motor van appeared in the December, 1896, issue. The Cruickshank Steam Engine Works, of Providence, R. I., took one of its steam engines, unhitched two horses from one of the vans operated by Shepard & Co., large Providence department store, substituted the engine for the horse power and came up with a "steam van for delivering furniture and other household goods." There is no record that Cruickshank ever built or offered for sale a complete vehicle.*

\* \* \*

Credit for building the "first commercial electric delivery wagon in the U. S." is given by *The Horseless Age* to Riker Electric Motor Co., Brooklyn, N. Y., in its issue of October, 1898, with a photograph of a job built for B. Altman & Co., New York City. It

(TURN TO PAGE 246, PLEASE)



# WHAT IMPROVEMENTS IN 1947 C.O.E. MODELS

Company	C.O.E. Models Percentage Production (Prewar)	Range C.O.E. Models (Prewar)	Range C.O.E. Models 1947	Driver Comfort					Main- tenance		Special Features		
				Improved Suspension	Cab Ventilation	Cab Heating	Better Seats	Better Accessibility (controls)	Engine Relocation	Ease of Inspection	Bigger Engines	Higher Road Speed	Wheelbase Range
A	40	23,000; 26,000; 28,000; 30,000 G.V.W.	Same	Yes	Yes	Yes	Yes	Yes	Yes	Yes	(1)	(1)	(1)
B	10	14 models	Possibly not	-	-	-	-	-	-	-	-	-	-
C	Small	Only custom-built	Small	-	-	-	-	-	-	-	-	-	-
D	Small		Not decided	-	-	-	-	-	-	-	-	-	-
E	None		None	-	-	-	-	-	-	-	-	-	-
F	5	17,000; 20,000; 25,000 G.V.W.	17,000; 20,000; 28,000 G.V.W.	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
G	15 to 20	13,000 to 36,000 G.V.W. for trucks and to 60,000 G.T.W. for tractors	Same	(2)	(2)	(2)	(2)	(2)	(2)	(2)	Yes	(2)	(2)
H	None		None	-	-	-	-	-	-	-	-	-	-
I	None		None	-	-	-	-	-	-	-	-	-	-
J	None		Possibly some	-	-	-	-	-	-	-	-	-	-
K	Small	Special order only. Minimum rating 24,000 G.V.W.	24,000 to 36,000 G.V.W.	Yes	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L	1	1½, 2, 2½, and 3-ton	1½ to 5-ton	Yes	-	-	-	-	-	-	No	No	No
M	None		None	-	-	-	-	-	-	-	-	-	-
N	2 to 3	14,000; 17,000; 20,000; 28,000 G.V.W.	Plans for 1946 uncertain	-	-	-	-	-	-	-	-	-	-
O	10	1½ ton and upward	1½ ton and upward	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1) Will parallel improvements in conventional models  
(2) Same as prewar

## TABULATION OF CONFIDENTIAL RETURNS 1947 C.O.E. MODEL PROGRAMS

# Progress and Improvements

**F**LEETMEN hungry for trucks bearing the fruits of wartime experience have a special interest in what is coming in the cab-over-engine models for 1947. At the last SAE Annual Meeting there was ample evidence of a radical change in thinking about transportation equipment. One of the biggest sessions seethed with ideas on driver comfort—on the need for giving the driver everything he needs to ease his main job of piloting an expensive load and an equally expensive vehicle to its destination, quickly and safely.

What is new in c.o.e.'s for 1947? Some of the answers will be found in

this study conducted for COMMERCIAL CAR JOURNAL readers, based upon contacts with every important manufacturer in the truck field. Driver comfort, improved maintenance, better performance—these and other questions have been given a thorough going over.

Introduced originally to meet special local operating conditions or to offset the debilitating effects of state limitations upon road transportation, the early cab-over-engine vehicles represented the best compromises possible with the then existing conventional motor trucks. Since then they have had the benefit of progres-

sive improvement and design change paralleling similar improvements in conventional truck chasses.

**Improvements on the Way**  
**M**ORE recently, it has become evident that the postwar c.o.e. is being given a thorough going over by some of the leading manufacturers. Unmistakably, we have reached the point where this specialized vehicle will be tailored not only to meet the special operating conditions in which it reigns supreme but to endow it with long awaited and necessary improvements.

Judging by the evidence, the c.o.e.



**Some manufacturers tell of plans, others**

**are mum; consensus is that increased ac-**

**cessibility and driver comfort top list.**

**Other improvements will match new trucks**

**by JOSEPH GESCHELIN**

Commercial Car Journal, Detroit Technical Editor



## on Postwar C. O. E.'s

of 1947, or later dated, in some instances will have special features contributing to the comfort of the driver, with more attention to accessibility of controls, and increased accessibility of mechanical units to facilitate inspection and repair operations and, thereby, reduce operating costs.

Furthermore, since the c.o.e. jobs progress with improvements in conventional units, quite a number of manufacturers will make available in their c.o.e.'s the features of the modern trend to bigger engines, higher road speeds and a greater range in wheelbase options.

Going over the returns of the CCJ survey, it is obvious that the background of strikes and general economic uncertainty have delayed action on the part of many important companies. Although they all co-operated, the majority asked us to hold their returns confidential, so as to afford an opportunity of confirming their plans later on. In other cases, manufacturers have their plans firmed up but have asked to keep the information confidential because they are not yet at the announcement stage. On the other hand, there are some who are ready and willing to talk about their 1947 plans. These

companies are being quoted directly.

### White's Plans and Objectives

AS AN example of a frank and open statement of objectives, we give you the following excerpt from a letter received from Robert Cass, assistant to the president of The White Motor Co.

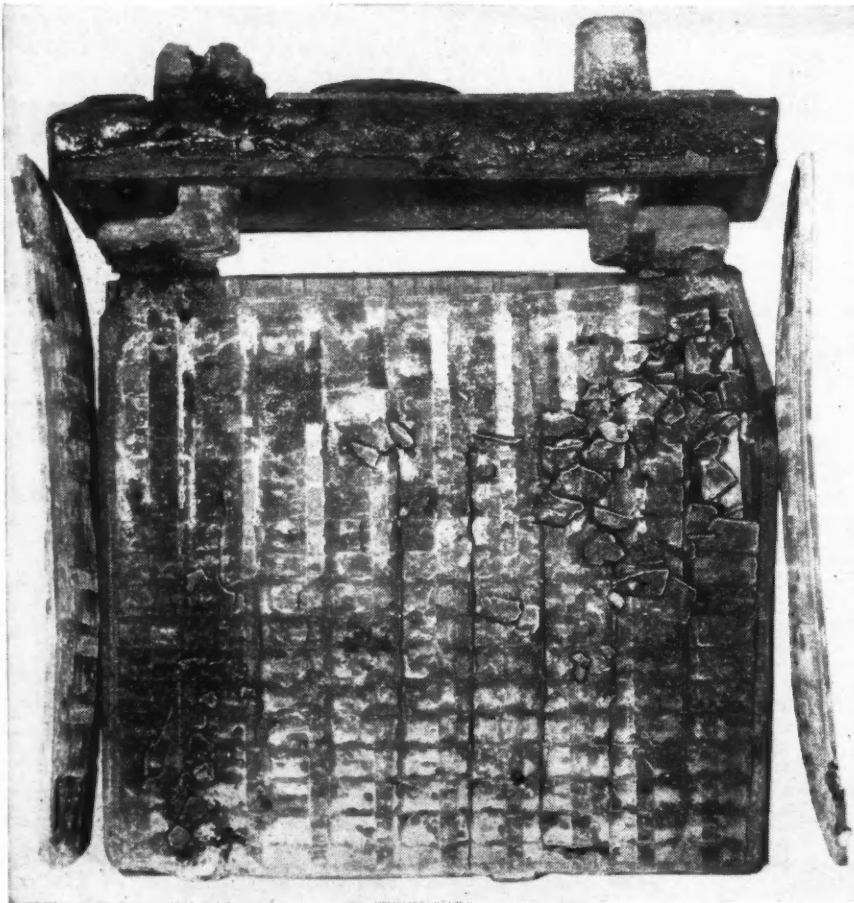
"We propose to build a certain number of c.o.e.'s this year, generally similar to those which we built before the war but with some improvements made in the design which will facilitate maintenance. Our point of view regarding the c.o.e. of the future—or should we say the postwar c.o.e.—is that there is no excuse for continuing to bring out c.o.e.'s which are as bad, from a maintenance standpoint, as the designs were before the war. We feel, also, that something should be done about the ride of the vehicles and, in general, we believe it is possible to make a c.o.e. model which, in every respect, can be as good or better than a conventional model. This is actually a man-sized job but it represents the standards we have set up for our engineering department to meet.

"Obviously, c.o.e.'s have been necessary in the past, however indifferently they have been designed, because of local operating conditions or state limitations, but we believe that the c.o.e. should be developed to a point where perhaps it could be regarded as being capable of meeting all truck operating conditions, regardless of the fact that it is a c.o.e. type.

"We agree also that the c.o.e. of the future will have to take into account an entirely different point of view in regard to driver comfort and we naturally expect to build into our postwar c.o.e. not only a greatly improved suspension from the standpoint of ride but would also expect to include a complete system of heating and ventilating which would be positive in action and which would operate without regard to vehicle movement. In addition to this, we will attempt to considerably improve vision and seating arrangements. We also hope that we shall ultimately build c.o.e.'s of horsepowers corresponding to those now used in the conventional designs, so that our gross weights also will be in keeping with the conventional line."

(TURN TO PAGE 138, PLEASE)

# OVERCHARGE . . . a Battery's



*Fig. 1. This is what happens to the positive plates in a cell as a result of overcharge. Positive plates are pushed up and short on the negative plate strap*

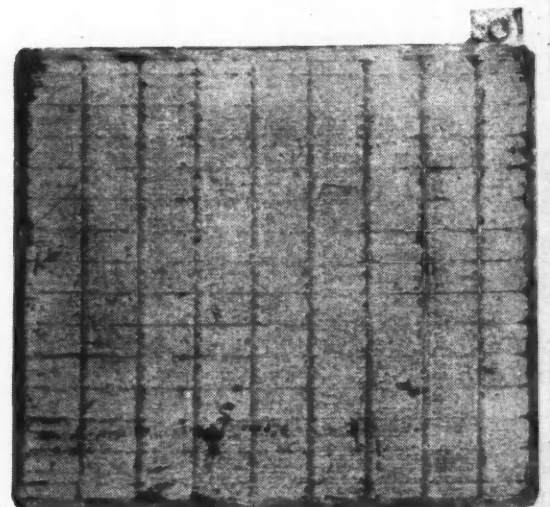
**Battery more apt to overcharge in summer than any other season. In addition to generator and regulator troubles, high temperature causes overcharging**

**by W. H. CROUSE**

Service Engineer, Delco-Remy Division, Anderson, Ind.

**A**N OVERCHARGED battery is a sick battery. The more the battery is overcharged, the sicker it gets. Battery plates swell and warp, grids begin to go to pieces, until, finally, the battery dies of an internal short circuit.

A battery is more apt to be overcharged in the summer than any other season. It can give notice that it is being overcharged in several ways. The chemical actions produced by overcharge cause considerable water to be used up so that the overcharged battery needs a great deal of water to maintain the electrolyte level. Also, in later stages of overcharge, the swelling of the battery plates raises the positive side of the cell covers (Fig. 3). But before we go into this and analyze what takes place inside an overcharged battery, let us take a look at what occurs during normal battery operation.



*Fig. 2. Contrast this good plate with the one above. Active material adheres closely to crossbars of grid*

# Greatest Summer Enemy

## Normal Battery Operation

WHEN a battery is producing current, the sulphuric acid ( $H_2SO_4$ ) in the electrolyte enters into chemical action with the lead compounds in the battery plates. In the negative plate, the sponge lead turns into lead sulphate. In the positive plate, the lead peroxide ( $PbO_2$ ) also changes into lead sulphate. As this action occurs, the sulphuric acid leaves the electrolyte and is replaced by water. When most of the sulphuric acid and active materials in the battery plates have been used up in this manner, the battery is discharged and must be recharged.

During the recharging action, the lead sulphate in the battery plates is reconverted into active material (into sponge lead in the negative plate and lead peroxide in the positive plate) and sulphuric acid reappears in the electrolyte. During this process, the water ( $H_2O$ ) in the elec-

trolyte is broken down into its two constituent parts—hydrogen and oxygen. The oxygen enters the positive plate where it converts the lead sulphate into lead peroxide. The sulphate leaves the plate and combines with the hydrogen to form sulphuric acid.

These chemical actions are rather difficult to understand but once understood, they provide a good explanation of the damage that occurs during overcharging.

## Battery Overcharging

AS CURRENT continues to enter the battery, more and more of the lead sulphate in the battery plates is reconverted from sulphuric acid into active materials as already explained. Finally, however, as the battery reaches a fully charged condition, all of the lead sulphate has been reconverted. If charging action continues beyond this point, then the



battery will be overcharged. This means that the water in the electrolyte will continue to be broken down into its two component parts—hydrogen and oxygen. Most of these gases will be released so that the battery will gas. Excessive gassing will ruin a battery. The amount of gassing that occurs is, of course, dependent upon the amount of current going through the battery.

The hydrogen gathers at the negative plate but does little damage since it does not react chemically but escapes from the battery. The oxygen, however, gathers at the positive plate and, while much of it also escapes, part of it enters into the positive plates; in effect, it is looking for something to react with. Since all of the lead sulphate has already been reconverted into lead peroxide, the only thing that the free oxygen can react with is the plate grid structure which is made of lead alloy. It begins to turn the grids into lead peroxide. This does two things. First, it weakens the grid structure. Secondly, it causes the plates to swell since the lead peroxide requires more room than the lead in the grids alone. As a consequence, the plates begin to swell and warp. Tremendous pressure is sometimes created  
(TURN TO PAGE 135, PLEASE)

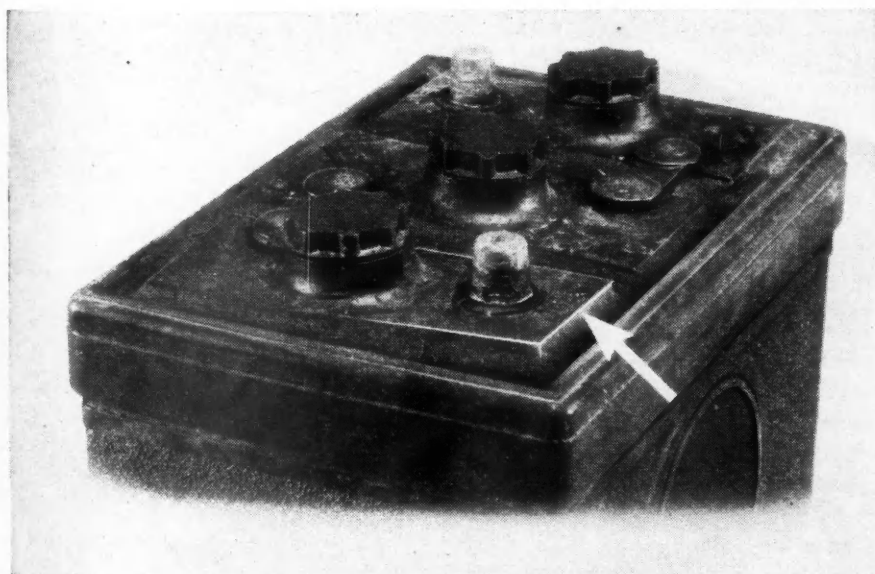


Fig. 3. Evidence of battery overcharge is the raising of the battery cell covers at the positive terminals. Plates swell and disintegrate and push top of the battery up





## CUSTOM-STYLED Postwar Bodies



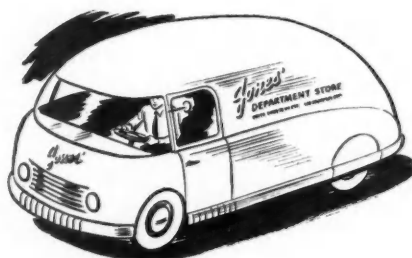
**E. M. Westberg**

PRIOR to the war, COMMERCIAL CAR JOURNAL presented, as a service to its readers, a series of articles on truck body design entitled "Body of the Month," written by E. M. Westberg. These articles described attractive and utilitarian truck body designs, with specifications to permit construction, if desired. The designs were original and were offered by the designer as suggestions for fleet operators interested not only in improving the appearance of their fleets but in obtaining more efficient bodies with greater payload possibilities.

### Valuable Experience Gained

DURING the war, invaluable truck body experience has been gained, and lessons learned, by both the fleet operator and designer. On the part of the fleet operator, the lack of manpower, reduced route schedules, worn and inadequate equipment, and other emergencies, have brought to light many new and improved operating techniques and equipment possibilities. On the other hand, the designer, too, has had placed at his disposal, and has developed during the war production

As a reader service CCJ has retained a well-known truck body designer to develop modern, usable bodies employing postwar materials and fabricating facilities



years, new materials and fabricating facilities to meet accelerated wartime delivery schedules imposed on production men.

As a service to its readers, COMMERCIAL CAR JOURNAL desires to see the experiences gained by both operator and designer, coordinated and developed to the fullest extent. Consequently, Mr. Westberg again has been retained to prepare a new series of truck body design articles.

### Practical, Usable Designs

IT IS intended that the designs comprising the new series be approached from a practical angle—namely, specific fleet requirements—and not general sketches created at random by the designer. To present such practical designs will require a great amount of research and study. Therefore, it is planned to create one set of body designs each month, covering

(TURN TO PAGE 44, PLEASE)



● Body designs will be based on this questionnaire. The more details you supply, the better will the designer be equipped to solve your problem. Mail data to Editor, Commercial Car Journal.

● Please check only those items pertaining to your particular vocation and requirements and add any other helpful data on the lines provided.

● **A—TYPE OF BODY REQUIRED**

- 1. Panel
  - a. Conventional ☐
  - b. Cab-Over-Engine ☐
- 2. Trailer
  - a. Van ☐
  - b. Rack ☐
  - c. Platform ☐
- 3. Van
  - a. Conventional ☐
  - b. Cab-Over-Engine ☐
- 4. Ice Cream Body
  - a. Conventional ☐
  - b. Combination Panel & Pick-Up ☐
  - c. Sales (Novelty Type) ☐
- 5. Bottlers
  - a. Conventional ☐
  - b. Trailer ☐
  - c. Door-to-Door ☐
- 6. Lumber
  - a. Rack ☐
  - b. Stake ☐
  - c. Platform ☐
- 7. Dump
  - a. Conventional ☐
  - b. Trailer ☐
- 8. Tank
  - a. Conventional ☐
  - b. Trailer ☐

- 9. Express Pick-Up ☐
- 10. Other Special .....
- .....
- .....

**B—PREFERENCE FOR SPECIAL STYLING**

- 1. Conventional ☐
- 2. Streamlined ☐
- 3. Color
  - a. Solid ☐
  - b. Two-Toned ☐
- 4. Advertising Panels
  - a. Side ☐ b. Front ☐
  - c. Rear ☐ d. Roof ☐
- 5. Display Windows ☐
- 6. Lettering
  - a. Painted ☐
  - b. Plastic ☐
  - c. Metal (Cast) ☐
- 7. Special Lighting Effects ☐
- 8. Other Requirements .....
- .....
- .....

**C—FUNCTIONAL REQUIREMENTS**

- 1. Size (Inside)
  - a. Length ..... b. Width .....
  - c. Height .....
- 2. Doors
  - a. Size: Height ..... Width .....
  - b. Location: Side ☐ Rear ☐
  - Front ☐

- c. Type: Double ☐ Single ☐
- Sliding ☐ Hinge ☐ Roll-Up ☐
- 3. Tailboards
  - a. Size: Height ..... Width .....
  - b. Type: Flush ☐ Inside ☐ Outside ☐
- 4. Folding Gates or Other Devices .....
- .....
- 5. Interior Equipment
  - a. Racks ☐ b. Shelves ☐
  - c. Other ☐
- 6. Insulation
  - a. Kapok ☐ b. Glass ☐
  - c. Cork ☐ d. Other .....
- 7. Refrigeration Equipment
  - a. Dry Ice ☐
  - b. Mechanical—Unit on Truck ☐
  - c. Cold Hold-Over Plates ☐
  - d. Water Ice ☐
  - e. Other .....
- 8. Loading Requirement
  - a. Platform heights .....
  - b. Steps .....
  - c. Wheelpockets—Yes ☐ No ☐
  - d. Special Loading & Unloading Devices .....
  - e. Other .....

(TURN TO NEXT PAGE, PLEASE)



## Custom-Styled Postwar Bodies

(Continued from page 43)

### 9. Product Sizes

- a. Type: Box ☐ Crate ☐  
 Carton ☐ Other ☐  
 b. Size: Length.....Width.....  
 Height.....

### 10. Skirt Panels

- a. Size..... b. Compartments.....  
 c. Type Compartment Doors.....

### 11. Other Requirements

### D. CONSTRUCTION REQUIREMENTS

#### 1. Materials of Construction

- a. Basic Structure  
 Wood ☐ Plywood ☐ Metal-  
 wood ☐ Steel ☐ Aluminum ☐  
 Magnesium ☐  
 Combination of.....  
 Other.....

#### b. Panels

- c. Roof  
 Metal ☐ Fabric ☐ Other.....

#### d. Floor

- Solid ☐ Plank ☐ Metal  
 Strip ☐ Diamondette ☐  
 Other.....

#### e. Lining

- Solid ☐ Slat ☐ Other.....  
 Material.....

#### f. Other Requirement

### 2. Hardware

- a. Locks.....  
 b. Hinges: Continuous ☐ Strap ☐  
 Other.....

#### c. Type of Finish: Painted ☐

- Chrome ☐ Other.....

#### d. Bumper Type

- Finish.....

#### e. Side Skid Rails: Material

- Finish.....

#### f. Chrome Trim Rails

#### g. Racks—Type: Removable ☐

- Stationary ☐ Arrangement.....

#### h. Stakes—Type: Removable ☐

- Stationary ☐ Arrangement.....

#### i. Other Requirements

### E—OTHER SPECIAL REQUIREMENTS

(CONTINUED FROM PAGE 42)

ering one vocation or one industry.

This design will be developed by careful analysis and selection of the best and most practical ideas and requirements of the respective fleet operators in the particular fields. The ideas and requirements will be coordinated and designed by employing the most suitable materials and fabricating facilities by the designer, keeping in mind, at all times, operating efficiency and initial production costs. This close coordination between operator and designer should produce the most practical and efficient design relative to requirements for each particular vocation.

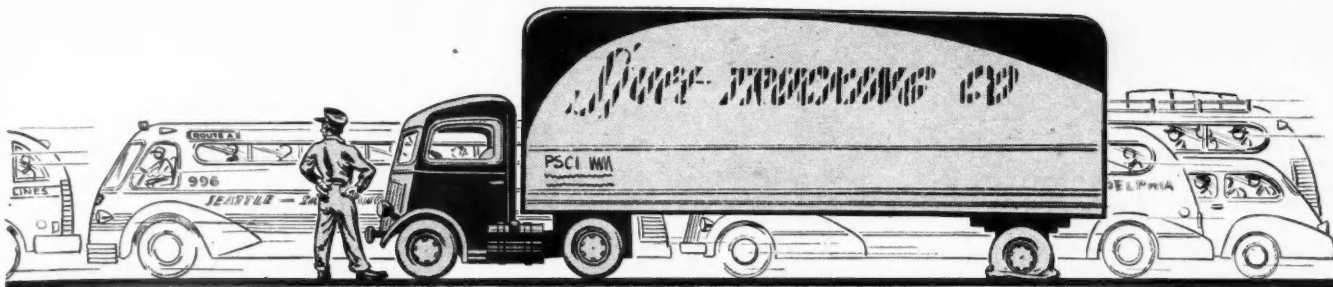
### Based on Questionnaire

THE basis of all designs will be data obtained and compiled from the questionnaire accompanying this article. The questions cover all possible vocations, industries and requirements. All that is required is for each fleet operator to fill in the data pertaining to his operation such as type of body required, loading requirements and so on. The questionnaire should be mailed to the Editor, COMMERCIAL CAR JOURNAL, 56th and Chestnut Sts., Philadelphia 39, Pa.

### All Original Designs

AS SOON as received, all data will be turned over to Mr. Westberg. He then will proceed to develop designs that will meet the conditions specified. In this way, readers will be assured that all body designs will be practical and capable of actual construction. The ultimate value of the articles will be in direct proportion to operators' responses and completeness in indicating their requirements.





**F**OR a long time truck fleet operators have been eyeing with envy the tire leasing contracts which many bus lines hold with tire companies. From time to time, truck operators have made demands on tire manufacturers that a similar arrangement be effected for the trucking industry. The question is of considerable interest, and the pros and cons have been battled around between truckers and tiremen for several years, with no appreciable success.

COMMERCIAL CAR JOURNAL recently went into the problem with representatives of the major tire companies to find out, if possible, why no tire leasing program, similar to that carried on with bus lines, has not been developed for truck fleet operators. These representatives stated that no such leasing program is contemplated at present and explained why.

#### No Significant Saving

**I**N THE first place, the tire industry realizes that truck operators would like a tire leasing program because it would give them a controlled and budgeted per-mile tire cost. In addition, there is a general belief among operators that their tire costs would be lower. This, however, is an assumption that the tire companies dispute vigorously, based on the experience with bus fleets.

As one spokesman put it, "There is no significant saving in tire cost to the bus companies under a tire leasing plan. About the only advantage is that we, instead of they, have to worry about the mechanics of keeping tires rolling."

#### Bus Conditions Controlled

**T**HE reason that the tire companies will enter into tire leasing agreements with bus lines and not with truck operators is that bus opera-

tions are pretty well defined and controlled, whereas trucking conditions vary all over the lot. Buses travel over established routes and with fixed maximum loads. Thus, mileage is easily determined and overloading is not a factor. Road conditions are known and generally are the best. Under such conditions, the tire companies can come out on their investment, although most of them are not too enthusiastic about bus tire leasing, which continues out of precedent.

#### Trucking Conditions Difficult

**T**RUCKS, on the other hand, operate on a very flexible basis. Overloading is prevalent, tire maintenance sometimes is not too good, they are free to travel over all kinds of roads and terrain and operation generally is extremely difficult to control. Some truck operations might be of such nature that condi-

tions could be controlled sufficiently to warrant a tire lease, but the practical considerations of discriminating against the large percentage of truckers whose operations will not justify a lease program are a hurdle the tire companies do not want to tackle.

#### Financing also a Problem

**O**NE of the most important objections to a leasing program from the company standpoint is that, even if it were advisable, the financing problem would make it almost impossible. Under present conditions, with relatively low profit margins, most of the money received for sale of tires goes back into the business for building more tires. If the company were to lease the tires, it would get its money back in dribs and drabs over a long period, and would soon run into an operating deficit unless some means of outside financing were found.

(TURN TO PAGE 69, PLEASE)

## Truck Tire Leasing Prospects Poor

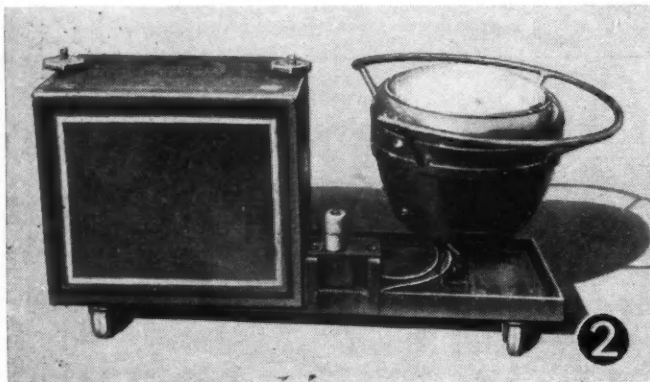
**CCJ survey shows services and charges  
required would not save money for truck  
fleet operators; own programs best bet**

**by LEONARD WESTRATE**

Commercial Car Journal, Detroit News Editor

# SHOP and SALVAGE HINTS

Commercial Car Journal will pay \$5 for acceptable shop hints and \$5 for parts salvage tips. A snapshot or a rough drawing with a simple explanation is all that is needed. CCJ will polish them for publication. Send one in today! Shown at right is a typical contribution—just a rough sketch and a brief statement of the problem and its solution. See how it looks in Fig. 1. This brought Mr. Thomas \$5. There are other \$5 bills waiting for your contributions. Don't underestimate your ideas. Let the editor judge.

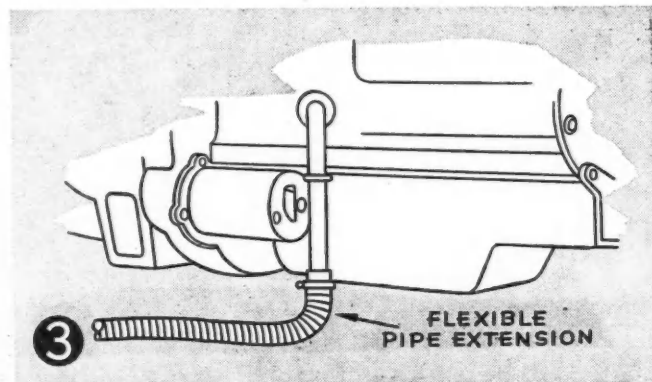


## 2. Portable Shop Light

by David J. Seigel, Fleet Super.  
Metropolitan Distributors, Inc.  
New York, N. Y.

Here is a drawing of one of our most useful shop units. It is a 6-volt battery and shop light mounted on low casters and designed especially for rolling under vehicles in places where there is no electric power.

There is very little material needed to construct this light. Take a length of angle iron and weld it into a rectangular shape large enough to accommodate a storage battery. Weld two 3/16 x 1-in. straps to this frame in a position where they will hold the battery at the ends as shown.



The next step is to take a sealed beam headlamp and mount it to the frame with an adjustable swivel. This can be obtained from a rear view mirror. Around the edge of the light fix a circle of 1/4-in. round stock for a guard. Between the light and the battery mount an ordinary dimmer switch and connect the unit.

## 3. Breather Pipe Extension

by Jean Babin, Garage Super.  
Columbian Laundry  
Newark, N. J.

On most small trucks from 1/2 to 1 1/2-ton capacity there is a short breather pipe extending from the valve plate cover or from the side

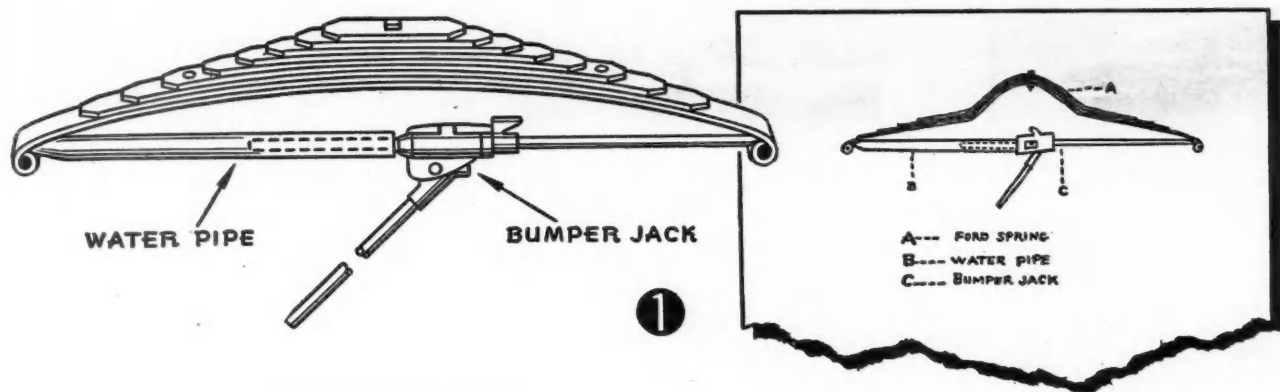
of the engine. This pipe in many cases just reaches the bottom of the block, and when rings get bad or on a windy day, crankcase fumes blow up into the cab of the truck.

We have licked this trouble with a very little work by putting a flexible pipe extension over the breather in the manner shown in the drawing. Now we are not troubled by fumes and gases no matter how hot the weather or the engine.

## 4. Ford Clutch Repair

by G. E. Upperman, Garage Super.  
Continental Baking Co.  
Wheeling, W. Va.

When we find it necessary to re-

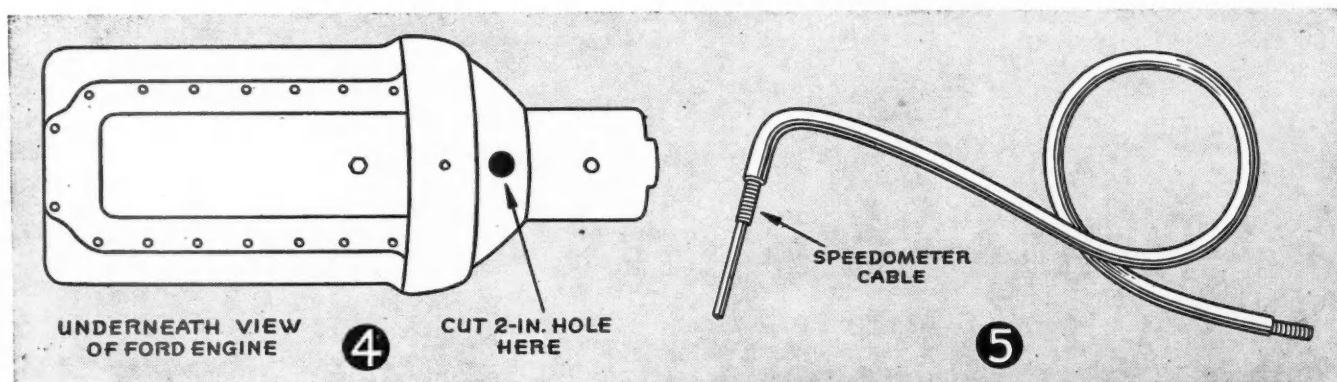


### 1. Ford Spring Expander

by John T. Thomas, Thomas Bros., Paw Paw, Mich.

I made a good spring expander to use in our shop on Ford cars and trucks. It is made with a regular bumper jack and two feet of 1½-in. pipe. One end of the pipe is hammered down to form a wedge to fit between the spring leaf and the spring eye. One end of the bumper jack rod is filed down to fit on the opposite end of the spring.

The jig is now placed between the eyes as shown in the sketch and the ends forced apart. The tool really saves a lot of time when installing springs.



place a clutch throw-out yoke pin in our Ford 1½-ton trucks, we cut a 2-in. hole in the under side of the transmission housing so that the part can be removed without disassembling the transmission. The attached sketch shows the under side of the Ford engine and transmission and the location of this hole.

This opening is cut with a ⅛-in. drill. A plug or a cover may be put over it with a couple of spots of electric welds.

This short cut saves plenty of time when a pin shears off or a finger breaks off the yoke, as it is possible to install the yoke through this opening.

### 5. Tube Bending Tip

by W. B. Anderson  
Commonwealth Baking Co.  
Chelsea, Mass.

In bending brass and copper tubing for fuel pump, carburetor or hydraulic brake line connections, I find this practice easy and fool-proof.

Take an old speedometer cable, put a little grease on it and insert it through the tube. Now when it is bent, the sides will not collapse.

### 6. Lubricating Engines

by S. Fischer, Foreman  
East End Dairies, Indianapolis, Ind.

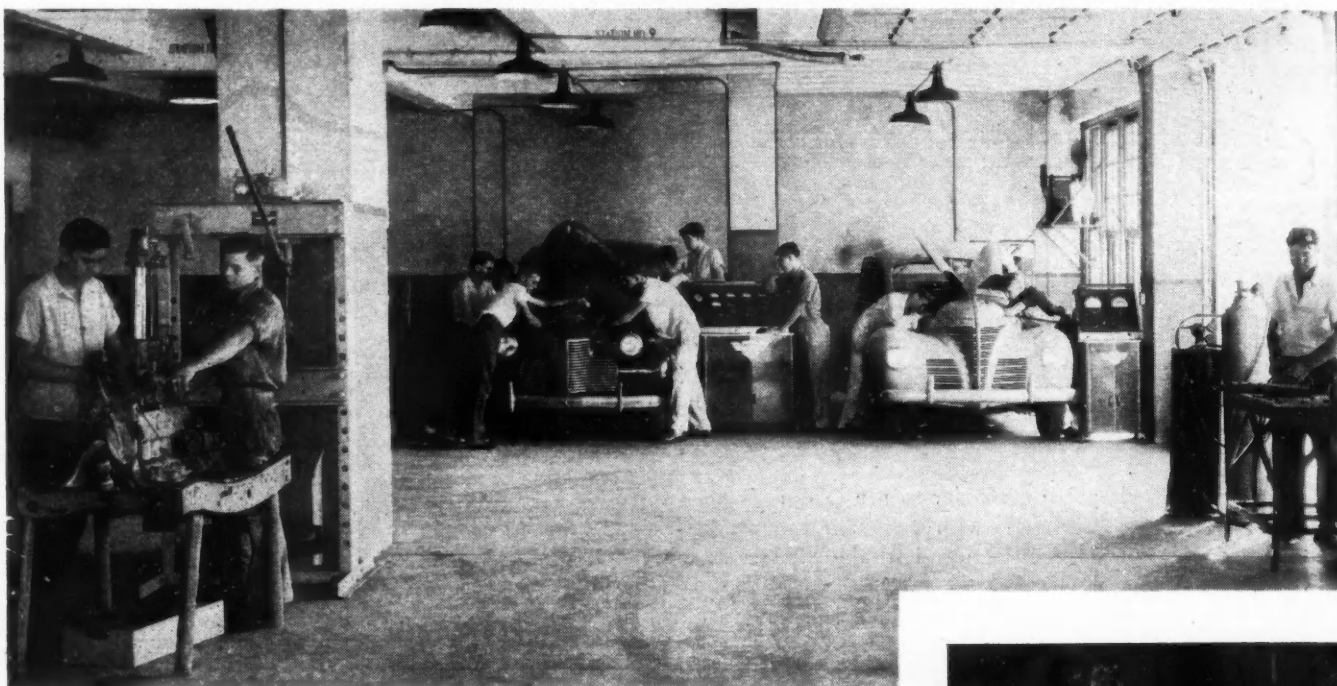
After assembling, painting and installing newly overhauled engines,

we find that upon starting it up, there is no oil pressure at all, because the oil pump will not prime itself. We have a quick way of priming the pump which is much easier than the common procedure of disassembling it.

We take our bearing leak detector, which is run by an electric drill, and connect the hose to the oil system. This fills up the entire oil system in a short while and floods every part with oil.

With this method we eliminate the customary practice of pulling a new job for a few blocks to circulate the oil. This practice saves a lot of time in getting out a job.



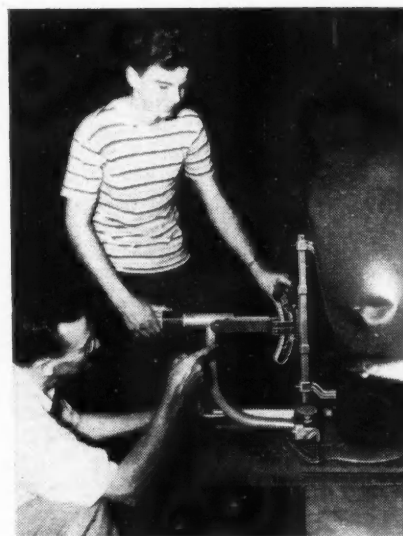


*Sectional view of part of the automotive repair shop used in the training of teenage mechanics. The boys at left are experimenting with a boring bar on a "guinea pig" engine. Right, D. J. Province, auto course instructor, Tech High School, Miami, Fla., shows trainee how to adjust apparatus for wheel alignment*

# Eyeing Trade - Trained TEEN - AGERS

**Vocational schools are developing good mechanic's helpers, mentally and manually trained and with good work habits; part-time jobs provide some experience**

**by HARRIE H. BIERMAN**



**A**MONG the fleet maintenance manager's more serious labor problems is the current shortage of good "helper" material—personnel which can be depended upon to do today's job well and which can be developed into Grade A mechanics.

For the fleet boss who has such a problem, there is likely to be a ready-to-hand solution: The trade-trained youngsters turned out by the vocational education schools. Most of the larger cities and many of the smaller ones, throughout the country, have schools of this kind, which offer automotive repair and associated courses.

Partially supported, in a majority



*Above. Working as a team, these teenagers are learning engine tear-down reassembly. Here they dismantle clutch*

*Below. A school student employs electrically-powered equipment to reface a valve. Classroom work is also required*



of cases, by government-contributed funds, participating institutions must maintain the instructional standards prescribed by the Federal Office of Education. Under this coordinated teaching plan, classroom work is integrated with practical shop work.

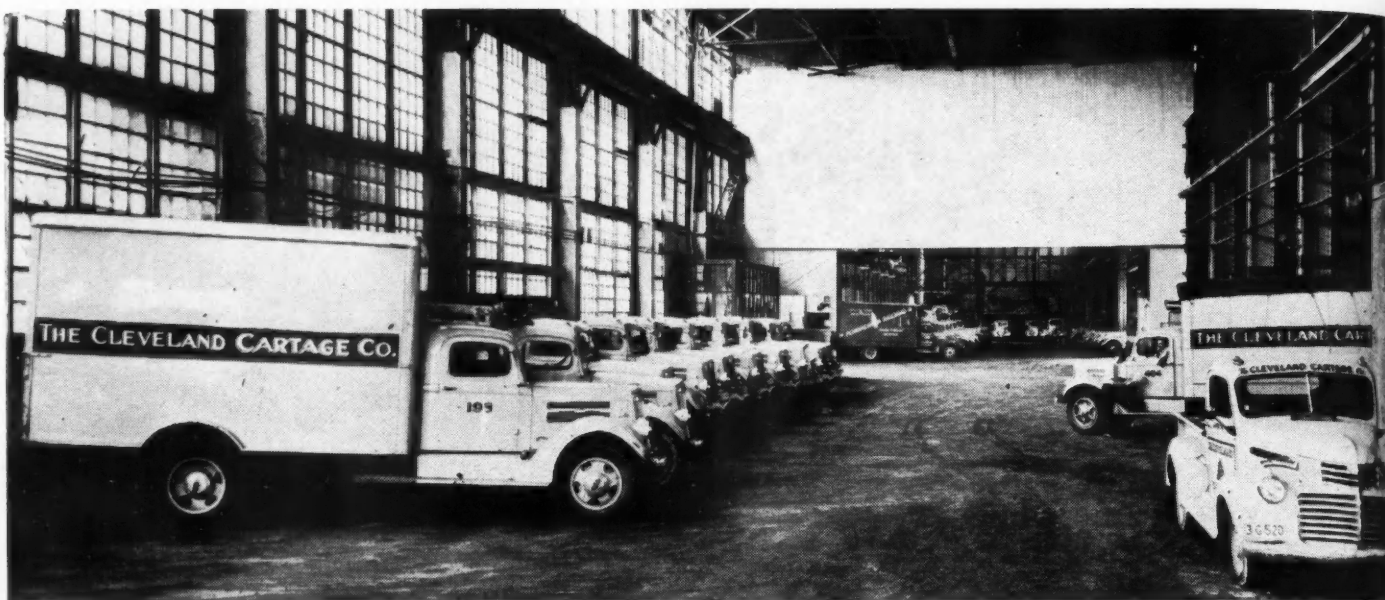
Consequently, the teen-agers graduated from the various courses offered are mentally, as well as manually, trained for their prospective jobs. In addition, they are guided into proper "work habits" and are given a healthy viewpoint as to what they can expect from their future employer and what he has a right to expect from them.

#### Miami Tech's Program

ONE of the best of these vocational schools, Technical High School, located at Miami, Fla., should serve as a medium for demonstrating how teen-age youngsters are trained for service as potential fleet maintenance mechanics.

This school occupies a 15-story, block-long building of modern, concrete-and-steel construction. In it are taught a wide variety of vocational courses, including the electrical and mechanical trades.

The automotive repair shop is located on the ground floor, at the rear (TURN TO PAGE 162, PLEASE)



*View of the inside of the Cleveland Cartage Co.'s huge garage, showing part of the 250-vehicle fleet*

## Rebuilt-Test Stand Speeds Engine Overhauls

**Home-made device simplifies and expedites overhauls and, with accessories, serves as a break-in stand; makes possible system which reduced road failures by 65 per cent**



**Emery B. Stroud**

OUR company operates a local delivery and hauling service in the Cleveland industrial area, ranging from millions of small packages per year, up to gigantic 150-ton loads. In the latter category, about everything from huge transformers to small buildings are moved. Our company also operates another fleet, employed entirely to serve one of the major railroads (Pennsylvania) on its local door-to-door delivery program.

**by EMERY B. STROUD**

Superintendent of Maintenance, Cleveland Cartage Co., Cleveland

Finally, we also operate the Western Express. This fleet hauls freight between our westernmost terminal at Toledo, Ohio, the main terminal at Cleveland, Buffalo, Syracuse, New York, and Boston, Mass.

There are approximately 250 power units in the three fleets, and a like number of trailers on the over-

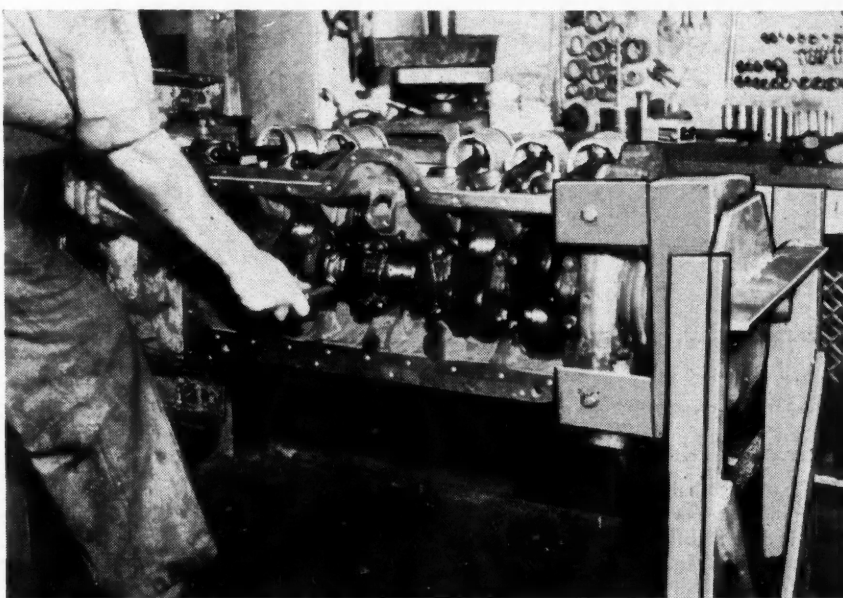
the-road long distance service. All major overhauling is done at the main shop in Cleveland. Minor adjustments and repairs are done at the other terminals, Toledo, Buffalo, Syracuse and Boston.

Our big problem is to keep all units in active service carrying payloads with the lowest possible num-

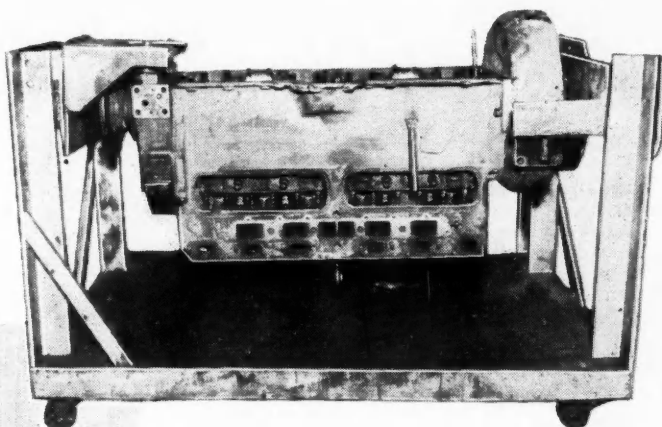




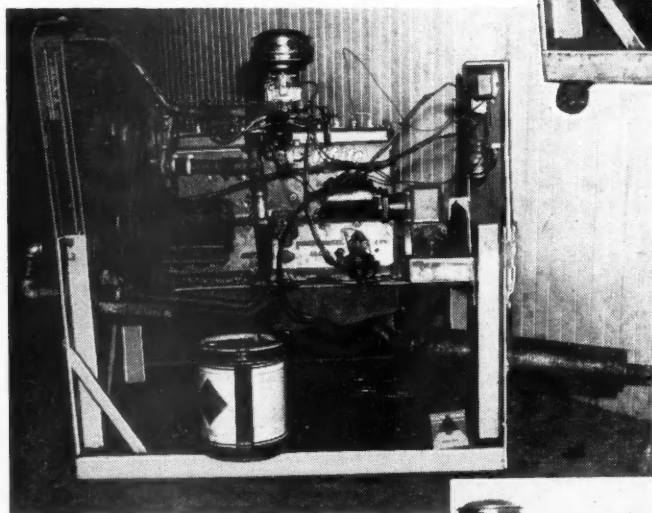
*Above. The portable test stand built of salvaged parts. Here a mechanic is grinding valves with block in stand*



*Upper right. The stand is turned and with block on its side, pistons and new rings are installed*

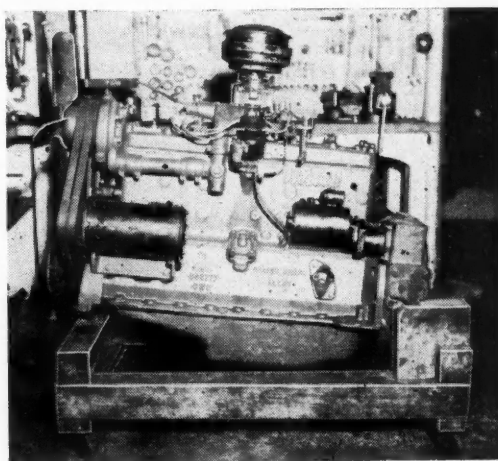
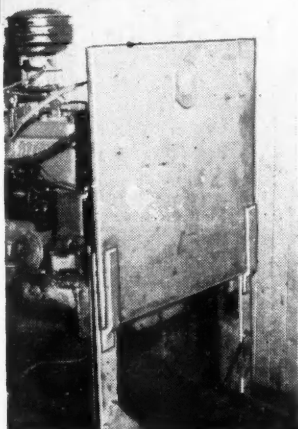


*Above. Here the block has been turned upside down so that bearings, crankshaft, oil pump and camshaft can be installed easily*



*Left. A radiator, instrument panel, fuel tank are added, the exhaust pipe is connected and the engine is run-in and tuned. Inset. Another view of the instrument panel showing how it is mounted to the stand*

*Below. After engine has been tested and tuned, it is mounted on a dolly and kept in stock until needed as a replacement*



ber of idle units, which means a constant effort of extending periods between major overhauling jobs and cutting down drastically the actual time of making major rebuilding jobs. Since 90 per cent of our fleet consists of heavy-duty units, the objective is of the utmost importance.

(TURN TO PAGE 150, PLEASE)

# EARS to the GROUND



## Hydraulic Fifth-Wheel

While a large midwest fleet is experimenting with a new fifth wheel equipped with a hydraulic lift, the manufacturer is probing its market potential. Pending further developments in both instances, this department must content itself with the speculation that the new unit's principal asset is in its quick adaptability to trailers of widely different heights, a feature particularly noteworthy in spotting operations. First reports from the operator say he is delighted.

## Aluminum Diesel

Not to be out-done by advanced engineering in the gasoline engine field, a diesel builder has definite plans afoot for a new line with all-aluminum construction. If the plans materialize, there is every indication that a cool 500 lb. can be shaved off the over-all weight. And, brother, as the saying goes, that ain't hay. In this case its payload.

## Another Super Suspension

Fruehauf's new gravity-torsion-bar tandem-axle suspension is now a matter of record, but not so widely heralded is the new single axle suspension with "multi-rate" spring, said to be equally as revolutionary. Its leaf spring stiffness is designed to increase in exact proportion to the load, all the way from empty to overload. Full details of the new Fruehauf line are scheduled for the next issue.

## Plastic-Paper Filter

A gasoline filter using a new plastic-impregnated paper, spirally wound to make the element, is in production by Skinner Purifiers, Inc. Similar jobs for filtering air and oil are reportedly past the blue print stage. Judging by the sample secured by our Detroit detective, it looks good.

## Heat off Frozen Foods

Frozen food producers, well aware of the tasteless, pulp-like condition in which much of their wares reach the dining room table, know that their number one enemy is heat. Their objective is to take the heat off the product and put it on the men who handle, transport and store frozen foods. Right now they are being bombarded with a bacteriologically-sound

argument that the way to keep the product fresh is by means of zero degree temperature (and they do mean zero) right down the line from original storage to truck, to retail cabinet. To assure them they will get that temperature there is a distinct possibility that the use of recording thermometers in trucks and rail cars will be a part of the shipping contract.

## Up and Down Carburetor

A Midwest operative, well versed on the injection type carburetor used on military airplanes which provides self-adjusting mixture control under varying altitude and temperature conditions, has been exploring its possibilities for truck use—particularly in Rocky Mountain service. In the Bendix carburetor, for instance, this function can be compared to a combination of Aneroid barometer and a thermometer. Our man found he was not alone in his search. The experts are on the trail, but not ready to talk.

## Valves Still Burning Issue

A couple of months ago this department touched on the burnt intake valve problem epidemic with rather widespread distribution. Others are touching on it too, including the Coordinating Research Council, and various truck and fuel research divisions. As yet, no news—which does not necessarily imply the situation is good.

## Polaroid Possibilities

Glare and the resultant night blindness are still high on the docket books of safety engineers. Most agree that (1) sealed beam headlights are the only practical way of lighting highways and (2) that Polaroid stands out as the most practical means of combating glare. Cost is now the No. 1 bottleneck in further progress. Why? Because no matter how well they slice it and sandwich it between sheets of safety glass (now practical) Polaroid still absorbs 60 per cent of the emitted light energy. That means must more powerful lights—some say it will take 125 watts—must be used, generator capacities must be tripled, wiring switches and protective devices much heavier. Probably four headlights would be needed, two Polaroid, two conventional. The question is how much increase in cost will the traffic bear.

## Lindsay Throws a Curve

Lindsay Structure, long-famous for its standardized and easily-replaced body panels, but heretofore short on streamlined effects, now will incorporate this feature, too. Secret is the company's new 12-in. radius cove panel scheduled for early mass production. The new unit will provide marked improvements in design, yet retain all the old features.

## New Life for Old

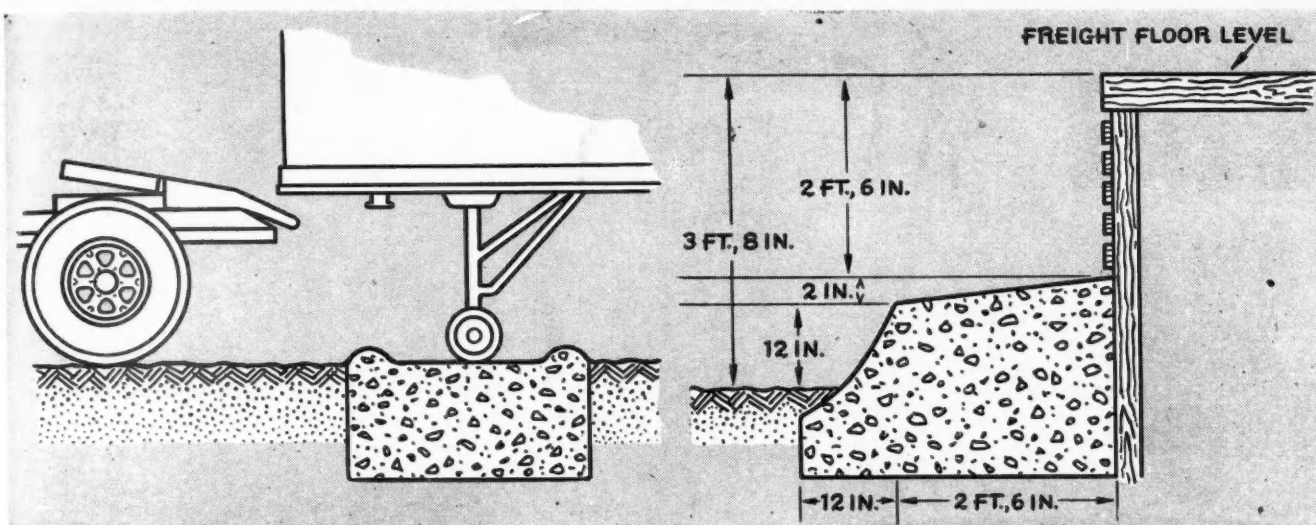
A process for polishing metal surfaces without changing dimensions—used during the war in manufacturing plants—is being considered for the cleaning of engine parts and cylinder bores. The result is a finely finished surface free from loose or worn and abraded metal which normally tears off after an engine has been overhauled. The manufacturer is toying seriously with the idea of building a pilot engine rebuilding plant to serve fleet operators. His objective is to tear down worn engines, subject all parts and cylinder bores to the special cleaning process, then rebuild in the usual fashion including the replacement of badly worn parts. As told to one of our outside operatives, this procedure is expected to produce rebuilt engines of unusual quality since rings, bearings and mating parts will be fitted to well finished base metal. Although this project is still in the idea stage, it may become a reality in a short space of time. We shall keep you informed.

## Battery-Powered Lamp

A Michigan maker has a new six-volt trouble-lamp for trucks. Arranged to plug in at a convenient spot, such as the dashboard or along the frame of a trailer, it has a cord long enough to bring the light to any spot on a truck or trailer. It may sell for less than a fin.

## Side Saddle Standards

SAE standards for side-mounted gas tanks are imminent. The I.C.C. has been plugging for standards as a safety measure. It is not expected that the standards will deal in gage of metals or construction details. They will prescribe a test for determining whether a tank meets minimum safety requirements.



*Atlantic States' concrete trough provides positive landing gear support, assures proper fifth wheel coupling alignment*

*Akers' concrete curbing protects dock and trailer, provides a positive trailer stop while the tractor is being coupled*

## Coupling Failures Prevented with Reinforced Concrete

One method provides positive trailer back stop; the other sure footing for landing gear

**R**ECOGNIZING the fact that many a loaded trailer has gone crashing to the ground because of an improper coupling at the fifth wheel, two North Carolina motor freight lines have developed simple and inexpensive methods for minimizing this danger. Oddly, neither of the plans has anything to do with the fifth wheel itself. One adds material protection to trailer rear ends, loading docks and tires.

### Akers Constructs Curbing

**A**T ITS large Gastonia headquarters terminal, Akers Motor Lines, Inc., has installed curved reinforced concrete curbing wherever trailers

are parked. The idea is not new at loading docks, but the plan is believed original when extended to include extensive locations in the parking area. Not only does the curbing provide a positive stop against the trailer's tendency to back up when coupled, but it also protects both trailer rear end and loading dock from impact injury—all without in-

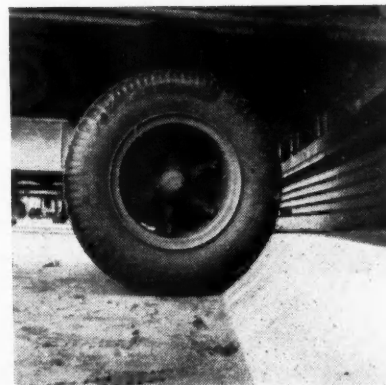
jury to tires since the curvature of the concrete mold conforms to the circumference of the tire.

### Atlantic States Uses Trough

**T**HE second approach to the problem was tackled at High Point where Atlantic States Motor Lines was experiencing considerable difficulty.

(TURN TO PAGE 174, PLEASE)

*Right: Two views taken at Akers' terminal show how curbing may be used either at dock or in parking areas*







Above. Metal holder at top holds the Service Operations Card, while the lower card holder is used to hang the Gas, Oil, Miles Record. Lube Board, center, serves as an efficient method of governing maintenance operations

Fig. 3. The Motor Car Report, 5½ x 11 in., is filled out by driver at end of the run and lists necessary repairs

MOTOR CAR REPORT ③	
Day _____	Date _____
Car Number _____	
Route Number _____	
Driver _____	
Speedometer Finish _____	
Speedometer Start _____	
Total Miles This Day _____	
General Report _____	
Repairs Required to _____	
Mechanic's Report _____	
Mechanic's Signature _____	

NOTE: Motor Car Drivers are required to fill out their report daily.

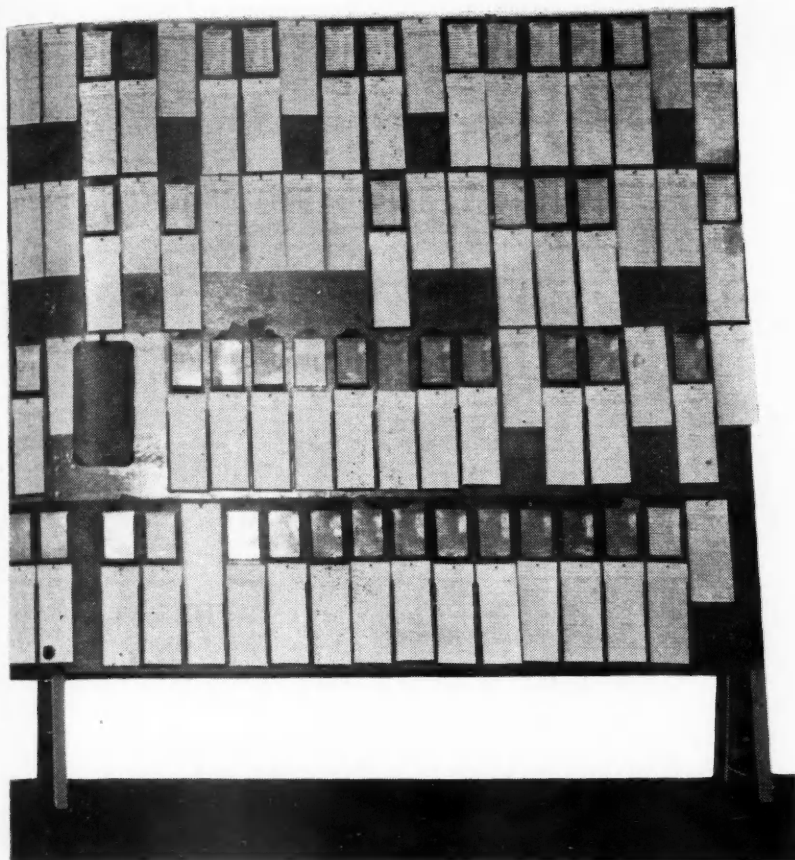
## LUBE BOARD . .

**T**RAVELING two million miles a year, covering the southern California area, our 150 bakery trucks in the Los Angeles Division employ a fast, efficient method of governing maintenance routine. The lube board has been the answer to our prayers for almost 10 years. Its simplicity, and the ease with which it can be understood and worked, has saved Langendorf United Bakeries, Inc., many dollars, improved preventive maintenance, and added longer life to our fleet.

Our fleet consists of 11½-ton delivery trucks, with three transports and four 33-foot semi-trailers. When a truck comes in off the road, it must make its first stop at the gas pump just inside the garage door, where it is serviced with gas, oil and water.

On the side of the gas pump there is a daily Gas-Oil-Miles Record card (Fig. 1). Every truck gassed and oiled during the day is recorded on the card as follows: In the route number column, the truck number is placed; then in their respective columns, the speedometer reading, number of gallons of gasoline put into the tank, number of quarts of oil put into the engine, and the number of quarts of oil drained, are all noted along the same line.

At the end of the day, the gas pump man merely totals the columns of his Gas-Oil-Miles Record and can tell exactly how many gallons of gas were pumped (this, incidentally, can be double-checked by the pump meter reading), and what the oil consumption was for the day.

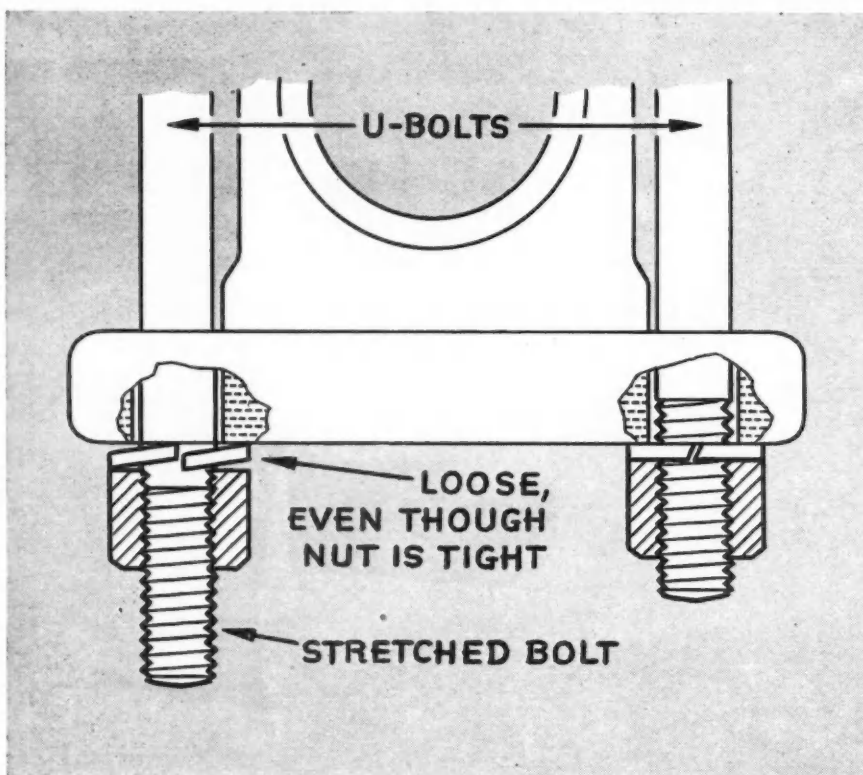


**GAS, OIL, MILES RECORD ①**

TRUCK NO. \_\_\_\_\_ ROUTE NO. \_\_\_\_\_

PERIOD \_\_\_\_\_ TO \_\_\_\_\_

DAY	ROUTE NO.	SPEEDOMETER	GAS GAL.	OIL QTS.	OIL DRAINED QTS.	REMARKS
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*Illustrating a condition where a nut was pulled to meet proper torque specifications for a truck spring U-bolt yet arrow shows that nut is not clamping spring securely to axle pad. Torque resulted from nut's unsuccessful effort to cut new threads on bolt*

## Torqued but NOT TIGHT

**U-bolt elongation may play tricks on torque wrench readings. Nut may be tight but pad may not be securely clamped against spring**

**“W**HAT’S wrong with that last batch of springs you sent us?” phoned a fleet operator from an adjacent state (West Virginia). “We’ve broken two of these springs, right in the middle, on one of our trucks.”

“Since they broke in the middle, that was probably due to the U-bolt nuts not being sufficiently tight,” replied the spring manufacturer.

“I was expecting that answer,” said the fleet operator. “So I had our mechanic take torque readings on the nuts of the U-bolts. The actual torques on these ¾-in. U-bolts was over 250 lb.”

“That might be enough,” agreed the spring maker. “Although 250 lb. torque is a little on the low side for bolts of 100,000 lb. tensile strength. The purpose of the torque wrench,

you know, is to measure U-bolt tension, and not just thread friction and the friction of the nut against the contacting surface. Since cold-rolled steel sometimes stretches, it is preferable to use U-bolts of chrome nickel steel, which have considerably greater strength. I assume your mechanic also used graphite and 600-W oil or cup grease on the threads and on the contacting surface of the nut?”

“Yes, our mechanic did all that,” said the fleet operator. “But it has us stymied. Perhaps you’d have time to investigate this for yourself?”

“Yes, I would,” agreed the spring maker. “I’ll be at your shop tomorrow.”

“Here’s the truck,” said the fleet operator to the spring maker when he arrived the next morning. “I’ll have one of our mechanics put a torque wrench on those nuts, to show you they are really tight.”

“Here you are, Mister,” said the mechanic. “The torque wrench shows 261-in.-lb.”

“Yes, it does,” agreed the spring maker after inspection. “But, hand me a hammer.”

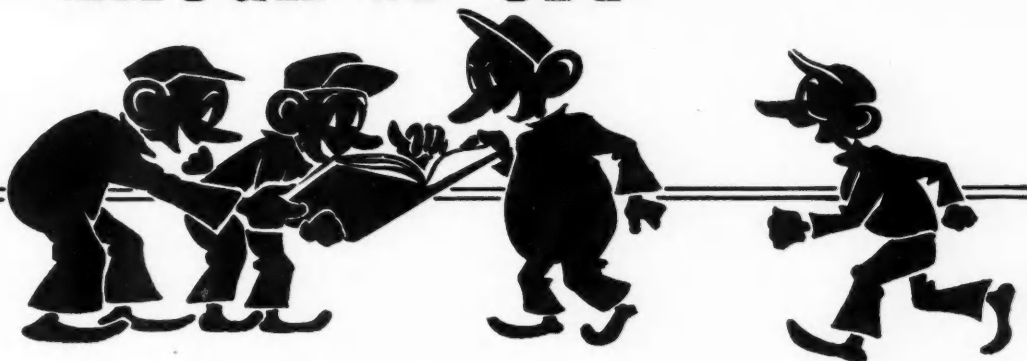
Getting under the truck, the spring maker hit the U-bolt nut a sharp rap with the hammer. “Hear that ‘flat’ sound? Now listen to the sharper sound, when I strike a U-bolt nut that is really tight. Notice the difference.”

“Yes, I do,” agreed the fleet operator. “That’s probably the trouble. For some reason, the nut must be tight on its threads, but is not clamping the spring securely to the axle pad. I see you are using the old-fashioned trick of the railroad car inspector, who walks along beside a

(TURN TO PAGE 118, PLEASE)



# LAUGH IT OFF



Our Safety Director, who had just checked out of a hotel, soon realized he had left his umbrella. Returning, he learned that a newly-wedded couple had taken the room. As he approached their door, a kiss resounded from within, and the bridegroom was heard to say: "Whose 'ittle mouth is that?"

"Yours," she cooed.

"And whose 'ittle neck?" he asked, kissing again.

"Yours, of course, sugarplum," she replied.

"And whose 'ittle—"

"Listen here, you folks!" the Safety Director demanded through the door, "when you come to an umbrella, it's mine."

C C J

According to the experience or deduction of our warehouse foreman, slacks worn by women may be like a particular brand of cigarettes in that they are round, firm, and fully packed, but they can't be easy on the draw.

C C J



She reached above her dimpled knee into her well-filled stocking

And there she found a roll of bills;

Ah, me; 'twas sweetly shocking!

"Why don't you keep it in a bank?"

Inquired a nosey prier.

"The principal is the same," she said, "But the interest here is higher."

C C J

We hear via the grape vine that one of our comely matrons recently submitted a weighty problem to Dorothy Dix. Wrote the lady in perplexity, "I now have two children, but I read that every third baby born is Chinese so I don't think I'd better take a chance, do you?"

C C J

BILL: "HONEY, I AM CROPPING FOR WORDS TO EXPRESS MY HAPPINESS."

MARY: WELL, BIG BOY, YOU WON'T FIND THEM WHERE YOU ARE LOOKING."

Judge to Mandy (who along with Rastus was being tried for fighting): "Now, Mandy, as I understand it, this man cut you with a razor in the fracas."

Mandy: "No, sah, yer honah, Jedge; he cut me in de laig, away below de fracas!"

C C J



Mabel: "Do you let your boy friends kiss you when you're out driving with them?"

Lula: "Never! If a man can drive safely while he's kissing, he can't give me the attention I want."

C C J

Terminal Manager: "By the way, Miss Smith, you didn't make carbon copies of these letters."

Miss Smith: "Oh no, because that would be a waste of time. You know what you said, and the customer gets the letter."

C C J

Company Physician: "Miss Hemingway, if you want a position with Speedy Spurt Freight, you'll have to have a health examination. And, if I am to give you a health examination, you'll have to remove your blouse."

Applicant Hemingway: "Oh, my goodness no, doctor!"

C. P.: "Come, come, now! Let's not make mountains out of mole hills."

C C J

The tank fleet operator's wife when serving her guests wine, remarked to one gentleman: "I should not be offering you wine. You are the head of the Temperance League, aren't you?"

"Oh no, no," he replied, "I am head of the Vice League."

"Well," said she, "I knew there was something I shouldn't offer you."

C C J

SADIE, OUR SAFETY STENO, SAYS THAT A LARK ON THE BEACH IS WORTH TWO DUCKS IN THE OCEAN.

Ophelia the Switchboard Operator: "Congratulations, I'm so glad you made a success with your lollypop invention."

Clara the Tire Records Clerk: "Where on earth did you get such nonsense?"

Ophelia: "Why, I overheard you tell Kitty on the phone a minute ago that you made \$500 on a sucker yesterday."

C C J

City Driver: "She turned off all the lamps 'cept one funny little green table light."

Dock Foreman: "Then what happened?"

C. D.: "Well . . . I've driven trucks through traffic too long not to know what a green light means."

C C J

Due to the scarcity of domestic help, the owner of one of our Class A Motor Carriers is currently helping his wife with the dish washing. She told a friend, "It's great fun—just like our first year of married life, only I'm not pregnant."

C C J



"IT'S THE LITTLE THINGS IN LIFE THAT TELL," SAID MAMIE THE CLAIM DEPARTMENT STENO AS SHE YANKED HER KID BROTHER FROM UNDER THE SOFA."

C C J

Commercial Agent: "The reason I am a travelling salesman is that my wife is like a stable full of decrepit horses."

Fellow Traveller: "How is that?"

C. A.: "Nag, nag, and nag."

C C J

"Jimmie," said the Maintenance Superintendent to his son, "I wish you would learn better table manners. You're a regular little pig at your meals. You know what a pig is don't you?"

"Yes," replied Jimmie, "a pig is a hog's little boy."

C C J

Resume Work



# PUBLICATIONS

USE THE POSTCARD—NO STAMP NEEDED

A selected list of the latest in literature—books, pamphlets, catalogs—chosen to help fleet operators solve maintenance and operating problems. Use free postcard.

## L50. Hard Surfacing Instructions

"Hard-Surfacing with Hardex Arc-Welding Electrodes" is the title of this new 16-page booklet which has been prepared for welders. The booklet is technical in its approach to the process of hard surfacing. It presents valuable information on the effect of temperature, chemical composition and rate of cooling on weld deposits, illustrating important details with graphs and photographs.

The booklet gives case histories from the field, showing how this welding process has been applied to the building and repair of machinery as well as transportation equipment.

A study of the publication will give the experienced welder a wealth of background which will help him in repair and rebuilding operations. Write L50 on the free postcard for a copy.

## L51. Copper Alloy Welding

"Welding and Brazing of Copper and Copper Alloys" is the title of a new 32-page illustrated handbook of procedures and materials now available to the fleet field.

There are three principal divisions in this treatise. One section presents definitions of materials and processes, with a table of compositions and properties of the most commonly welded and brazed copper alloys. A chart shows the preferred materials to be used with each method.

The second section of the booklet supplies information as to composition, physical properties, forms usually supplied, suitability for hot and cold working and special welding characteristics. Each alloy is presented separately and selected processes are given for best results.

The final section is devoted to welding and brazing materials for copper and copper alloys, and the general plan of treating each material.

This booklet is technical in its approach to copper alloy welding, and it should be

a handy textbook for the experienced welder. Just write L51 on the free postcard for a copy.

## L52. Valve Refacing Catalog

Information on refacing valves for truck and heavy duty engines has been compiled into a 4-page pamphlet and is being offered to the trade.

The publication describes the Par Stellite Faced Valve as a seasoned used valve reprocessed to meet aircraft engine standards of performance and endurance. The hard face, the annealed and toughened head and neck, are said to resist burning, warping and breakage, the most common cause of valve failure.

Prices of this type valve are reported as only slightly higher than the best alloy steel valves, and these refinished valves are said to give 10 times longer service.

For further information on this new process, write L52 on the free postcard and secure a copy of the pamphlet.

## L53. Rubber Suspension Study

A comprehensive discussion of the Torsilastic Rubber Spring, as well as the general subject of rubber suspensions, is contained in a new 18-page illustrated booklet, "Suspend It On Rubber," just released.

Starting with a general discussion of how rubber has found continually increasing uses in absorbing the shocks in modern automobiles, the booklet points out that there are approximately 265 rubber parts in the modern passenger car, ranging from tires to body shims.

The advantages of the Torsilastic spring are listed as: there are no bearings to be lubricated or serviced; no abrasion, rust or wearing action from dirt; will not develop squeaks or rattles; clean, lightweight, simple in design; eliminates friction, reduces vibration; long service life; absorbs shock or impact from all directions; reduces noise level; and there is no danger of sudden failures.

Torsilastic Rubber Springs have been used in such military vehicles as the Water Buffalo, Alligators, and Beach Busters, the booklet states. Its application to modern buses has resulted in many of the improvements listed above.

Write L53 on the free postcard for a copy of the booklet.

## L54. Refrigeration Catalog

Information relative to the better storage and transportation of perishable products at lower costs is now available in a new catalog offered to the industry.

This catalog is a veritable book of refrigeration knowledge, combining specific refrigeration data with a description of product features and uses. It contains simple, lucid charts showing how to compute both low and high temperature plate requirements. It tells the specific and latent heats of the various perishable products. In addition it contains complete instructions for determining the dimensions and heat leakage for truck plates.

The new catalog also describes the high efficiency and dependability found in Serpentine Plates for locker plant space cooling, for shelves and stands in sharp-freezing and as cabinet liners, shelves and dividers. It explains how evaporators maintain the temperature of delivery truck bodies at the uniform level necessary in the successful transportation of fresh meat, ice cream, frozen foods and other perishables.

A copy is available for the writing of L54 on the free postcard.

## L55. Engine Cleaning Booklet

A 6-page booklet on chemical methods of cleaning operations in every type of engine maintenance and overhaul is now ready for the fleetman. This illustrated publication shows detailed steps in cleaning procedures along with appropriate materials and equipment for an efficient job.

For a handy reference source, just write L55 on the free postcard.

# PRODUCTS



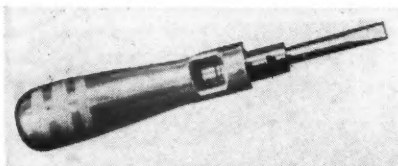
USE THE POSTCARD—NO STAMP NEEDED

The newest in replacement parts, accessories, shop equipment and supplies. For more details of products described or advertised on these pages, use the accompanying free postcard.

## P309. Torque Screw Driver

The new "Tru-Torque" line of torque measuring and controlling screw drivers is announced by Airdraulics Engineering, Inc., New Canaan, Conn. These small, lightweight tools are of the friction-disc type claimed by the manufacturer to be the most accurate principle of torque measurement and control.

The "Tru-Torque" screw drivers are manufactured in three standard sizes: from 0 to 6-in. torque lb.; from 0 to 12-in. torque lb.; from 0 to 25-in. torque lb.



Operation is simple—the screw driver is pre-set at the desired torque; the operator tightens the screw, nut or bolt; when the predetermined torque is reached the screw-driver handle slips and no further tightening of the screw is possible. There are no dials to read, or spring mechanisms.

"Tru-Torque" screw drivers come complete with one regular blade for slotted screws, nuts or bolts, one Phillips-type blade, one Allen wrench and pin setter. Snap-on adapter is also available.

Use Free Postcard For More Details.

## P310. Polishing Compounds

Three new Sherwin-Williams automotive rubbing and polishing compounds that are now in quantity production. Each is designed to do a specific job.

The Mechanical Wheel Polishing Compound can be used with any flexible shaft mechanical wheel polisher. It is applied to the car surface and does not load up on the polishing pad.

The Synthetic Enamel Compound is used

on jobs where the original finish of the car is a synthetic enamel and the spot repair job is done with lacquer. Because it has a mild abrasive action this compound blends the lacquer perfectly over the synthetic finish. It is recommended for removing road film, oxidation, insect stains and other blemishes from all synthetic finishes.

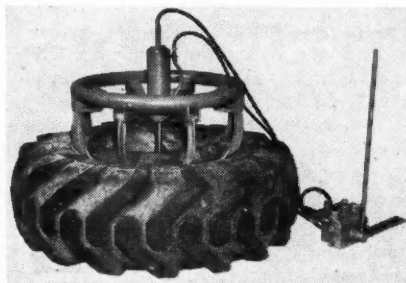
The Fast Cut Lacquer Compound is made of fine regular cutting agents. It has no sharp and irregular abrasives. It breaks up readily into small smooth particles on application and gives a clean high lustre.

Use Free Postcard For More Details.

## P311. Hydraulic Tire Demounter

The new Presto Model B Tire Demounter developed by the Lee Engineering Co., Pawtucket, R. I., is a portable device employing hydraulic action in demounting all size tires from 7:00 x 15 to 24:00 x 24.

The crosshead assembly and fingers are of all-steel construction. The steel pressure



plates are adjustable for all sizes of wheels and rims. The double-acting high pressure hydraulic cylinder has a 60,000-lb. capacity, and the hydraulic pump operates on 4000 lb. p.s.i.

The new demounter is available immediately, and the price is quoted at \$295.00 f.o.b. Pawtucket, R. I.

Use Free Postcard For More Details.

## P312. Commercial Spark Plugs

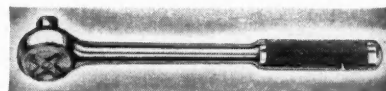
A new line of spark plugs, manufactured and distributed under its own brand name is announced by The B. F. Goodrich Co. The line includes 11 types of plugs for commercial use.

The line was released to the public after months of research and testing during which every part of the plug was subjected to intense study before being placed in the product. Featured is a pre-testing program which guarantees that every plug will render the service for which it is designed, the company says.

Use Free Postcard For More Details.

## P313. Handy Ratchet Wrench

The Duro Metal Products Co., Chicago, is offering an 80-tooth-action Duro-Chrome ratchet wrench line with mechanism en-



cased in a head measuring only  $\frac{3}{4}$  in. by  $1\frac{3}{4}$  in. According to the manufacturer, these new wrenches not only reach the hard-to-reach places but get action in arcs of less than five degrees.

In the new Duro-Chrome matched, balanced wrenches, the drive sizes are  $\frac{1}{4}$  in.,  $\frac{1}{2}$  in. and  $\frac{3}{8}$  in.; in each size the proportioning of the tool differs, and in each the point of balance comes at the exact place where the tool "feels best" in the hand. Finish is triple chrome plate.

Use Free Postcard For More Details.

## P314. Bead Releasing Machine

A new bead releasing machine that requires less pressure to break the bead because it has an exceptionally high pressure ratio, has recently been placed on the market.

(TURN TO NEXT PAGE, PLEASE)



# PRODUCTS



USE THE POSTCARD—NO STAMP NEEDED

(Continued from page 59)

ket by Associated Producers, Inc., Detroit, Mich.

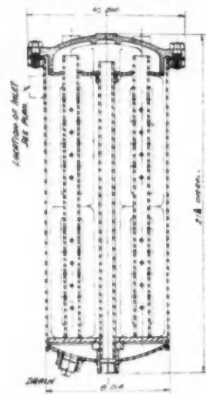
With a pressure ratio of 7 to 1, the "Beadmaster," as it is called, exerts 7 lb. pressure on the bead for every pound of pressure exerted on the handle. It handles all tires from the smallest to 7:50 diameter.

This device can be used with the wheel either on the car or off. By jacking up the car, and turning the "Beadmaster" on its side, the bead can be broken without removing the wheel.

Use Free Postcard For More Details.

## P315. Oil Conditioner

A new oil conditioner, originally designed to provide full-flow filtration for Cummins Diesel engines, but equally suitable



WINSLOW OIL CONDITIONER  
No. 8-931-C

for use on any heavy-duty gasoline or Diesel engine with similar requirements, has been announced by Winslow Engineering Co., of Oakland, Calif.

Intended for engines of from 150 to 250 hp., the new conditioner is known as Model No. 8-931-C. Containing eight Winslow elements with a total filtering area of 684 sq. in., it weighs 35 lb. dry and 65 lb. wet and has an oil capacity of 3 3/4 gal.

The conditioner is so designed, according to its manufacturers, that the oil cannot drain back into the crank-case when the engine is idle. This means that the filter will be full whenever the engine is started, thereby eliminating any chance of a flooded crank-case.

Another design feature is found in the cover assembly. Four built-in by-passes, each with a free area equal to the filter outlet, are so constructed that dirt is prevented from building up on the ball seat and holding the by-passes open.

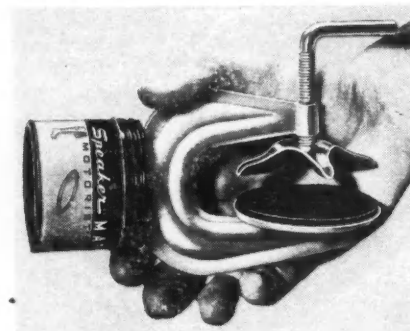
Use Free Postcard For More Details.

## P316. Motorist's Vulcanizer

The J. W. Speaker Corp., Milwaukee, Wis., announces a new-style motorist's vulcanizer—a compact, self-contained unit that enables any motorist to make vul-

canized tube repairs in his own workshop or wherever he's stranded with a flat tire.

The new vulcanizer, known as the M-3 Match Patch Emergency Kit, is made entirely of steel. A rubber cushion provides upward counter pressure that assures feath-



er-edged repairs. The insulating properties of the rubber cushion cause it to hold correct vulcanizing temperatures longer—an advantage that guarantees proper cure.

A can attached to the vulcanizer bears simple instructions and contains a buffer and three Match Patches with heat units and metal pans.

Use Free Postcard For More Details.

## P317. Battery Fast Charger

A Battery Fast Charger with new features has been added to the line of service station equipment of Bowser, Inc., Fort Wayne, Ind.

Compactly designed—13 in. wide, 22 1/2 in. long and 35 in. high—it is claimed that its narrow width permits easier use between parked vehicles. Two 8 in. rubber-tired wheels and a front caster with brake give the unit mobility and stability. Complete hook-up with the battery can be made from the front of the charger, and the control panel is read and operated from the front, making it unnecessary for the operator to squeeze past the charger or walk around the vehicle.

The unit is of heavy duty construction throughout with 100-amp., fan-cooled rectifier. A large transformer prevents overheating even with full load. Special shunts provide maximum reading accuracy under all temperature conditions. Heavier cables minimize voltage drop.

Use Free Postcard For More Details.

## P318. Aluminum Panelling

"Reynalite," a light-weight, high-strength, economical aluminum building material which can be produced in large quantities, has been placed on the market by the Reynolds Metals Co. of New York, N. Y.

The new material combines two sheets of aluminum bonded with a plastic adhesive, to a cellulosic core to form an attractive panel which is said to possess permanent rigidity and is adaptable to the construction and transportation industry. The panel is said to be impervious to moisture and to temperature changes.

Reynalite is being used in the construction of truck, trailer and bus bodies. It can be used too, for refrigerator linings, overhead garage doors, electrical cabinets, junction boxes, tool chests and air and heat ducts, as well as in the construction of buildings.

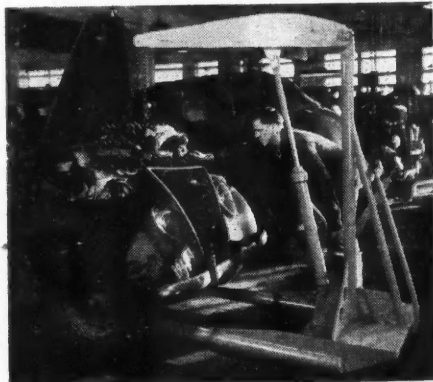
The panelling can be fastened with the usual type nails or screws and is worked with ordinary carpenter tools. It can be cut equally well on wood-working or metal-working equipment.

Use Free Postcard For More Details.

## P319. Hydraulic Floor Crane

A new floor crane, simple in design and structure, yet applicable to almost every type of lifting, moving and stacking job has been developed by the Ruger Equipment Co. of Portland, Ore. The new crane, which can be operated by one man, is said to be ideal for the repair shop. It goes anywhere on the shop floor—lifting, moving, "ducking in" and rolling under cars or machines.

Its ball bearing wheels and pulling handle give it the movability of a hand truck. Its movable lifting beam, powered by a hand-operated hydraulic system lifts loads up to three tons easily, quickly and safely.



It can pull a cab over engine, remove a transmission, lift cars and trucks, stack bulky crates and move heavy machines and parts.

The machine comes in three sizes: a 3-ton and a 2-ton model in two mast heights, with adjustable traveling hook, and a 1-ton model designed to meet the needs of the smaller shop or garage. Attachments include an extension beam for greater height or "duck in" jobs and a special arm for removing transmissions.

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### P320. Dipping Basket

To further aid in assisting users of the Bendix cold immersion type cleaner in removing deposits that accumulate on automotive and aircraft engine parts and other metal surfaces, the service sales department of Bendix Products Division, Bendix Aviation Corp., South Bend, Ind., now offer Bendix cleaner with a metal parts dipping basket which comes packed in the container.

The new package, dipping basket (which is optional) and cleaner, is packed in a new and larger can which makes a very convenient container for cleaning operations. The basket is a sturdy, well constructed item that will last indefinitely, according to the manufacturer.

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### P321. Grease Gun "Loader"

Loading of hand guns has been resolved into a simple, clean, quick operation by new equipment just announced by the Alemite division of Stewart-Warner Corp., Chicago.

A new "gun-loader fitting" which is mounted on the head of a hand gun and permits grease to flow into the grease reservoir of the gun in the same manner that it flows into a bearing through a lubrication fitting in normal lubrication, is the key innovation of the new gun-loading system. A loader valve mounted on a bucket pump or loader pump, functioning in the same manner that a coupler does when applied to a fitting, is the companion item to the loader fitting on the hand gun.

The new method eliminates disassembly of the hand gun, precludes danger of lubricant contamination or waste, eliminates annoyance of air pockets in the gun and permits gun loading in a few seconds



rather than the several minutes required by previous methods, Alemite engineers declare.

While several hand guns, both push-type and lever-type, as well as loader pumps of 25, 35, 100 and 400 pound capacity, all equipped with the special fittings and facilities required by the new gun loading system, were announced as ready, users of guns and bucket pumps already in the field can "convert" their equipment to the new system.

A loader valve, No. G-306740, to convert

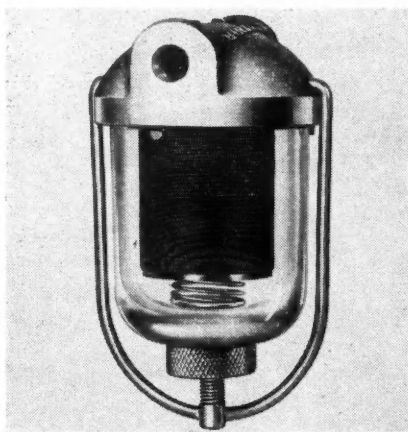
present guns to loader operation is available. It can be installed in either lever type or push type guns simply by drilling and tapping  $\frac{1}{8}$ -in. pipe thread.

A loader kit, No. G-306910, containing all necessary parts to convert any bucket pump into a loader, and including one loader fitting for a hand gun, is also available. A bracket to hold a gun on the side of the bucket is also included in this kit.

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### P322. Gasoline Purifier

An advance in automotive design has been released by the Skinner Purifiers, Inc., with the production of a new type gasoline purifier. This Skinner Gasoline Purifier is a system of purification which allows the fuel to pass between layers of helically wound ribbons made from impervious material. Dirt and other impurities are stopped at the outer edges of these ribbons and fall into the sediment chamber. Any accumulations on the outer surface of the



cylinder of ribbons can be cleaned off by simply blowing compressed air on the cylinder.

The filter separates free water from the gasoline through the action of the "Kwick Klean Kartridge." It can be installed in a few minutes and is adaptable to practically any automotive application. The purifier is made in one model to fit all applications—cars, trucks, buses, tractors and stationary engines.

Use Free Postcard For More Details.

### P323. Cleaner and Compound

A new self-contained cleaning unit for carburetors, fuel pumps, hydraulic brake and similar parts has been developed by Practical Products Co., Minneapolis, Minn.

The "Carb-u-tator" is actuated by metered air, all equipment for which is included with the new unit, including 10 ft. of hose for connection to air supply.

Simultaneous with the production of the machine a new cleaning compound is offered for use with it, "Carbusol," especially compounded for removing carbon, paint, aniline dyes, varnish, etc., without injury to metals placed in it.

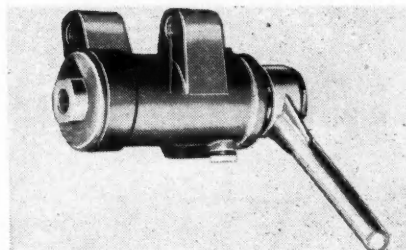
The "Carb-u-tator" unit is readily attached to all companion models of parts cleaning units, or can be used on the

bench. Parts baskets as well as supplemental screw baskets complete the unit, as delivered.

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### P324. Hand Metering Valve

The full-metering hand-control brake valve as designed by Wagner Electric Corp., St. Louis, Mo.; specifically as a single-barreled, hand-control unit for instal-



lation on dash, steering column, or other convenient location. Serrated handle of valve adjusts to any position desired by driver while the handle reaction and movement provide driver with a distinct "brake feel."

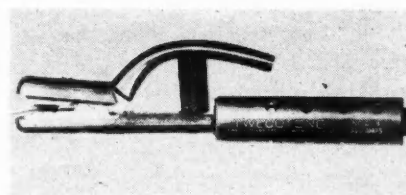
The inherent qualities of this valve make it possible to apply, release, or hold any desired amount of air pressure in the application side of the system. The driver is thereby able to regulate the degree of deceleration—from a slow, smooth stop, which requires very little air pressure, to an emergency application which is accomplished by a full stroke of the application handle thereby admitting reservoir air pressure to the system.

Utilized primarily for independent control of the trailer brakes in dual braking systems, its full metering action increases braking efficiency, facilitates driving on wet or icy roads, and assures positive control of tractor-trailer trains in mountainous country.

Use Free Postcard For More Details.

### P325. Electrode Holders

A complete new line of manual arc welding electrode holders to be known as "Twecotong" has just been announced by the Tweco Products Co., Wichita, Kan. The new line includes full-insulated and semi-insulated models.



The full-insulated models are known as No. A-14, 300-amp.,  $\frac{1}{4}$ -in. electrode capacity; No. A-38, 500-amp.,  $\frac{3}{8}$ -in. electrode capacity. The semi-insulated models are known as No. B-14, 300-amp.,  $\frac{1}{4}$ -in. electrode capacity; No. B-38, 500-amp.,  $\frac{3}{8}$ -in. electrode capacity.

(TURN TO PAGE 176, PLEASE)

# Shop and Garage Plans for a 1000-Vehicle Fleet

**West Coast utility's new \$900,000 maintenance and storage project has layouts based on work experience plus equipment requirements; better efficiency expected**

**by ELLIS W. TEMPLIN**

Automotive Engineer, General Plant Division, Power System  
Los Angeles Department of Water and Power

**I**LLUSTRATED on these pages are the proposed layout plans for a new automotive shop and a new auxiliary service building with a truck storage shed designed to service the fleet of approximately 1000 vehicles operated by the General Plant Division of the Power System of the City of Los Angeles.

Before discussing the details of the new shop and its equipment, it is believed appropriate to give readers a brief description of the fleet and its operating conditions and to share with them some of the thinking and planning behind this \$900,000 shop enterprise. It is hoped that by so doing, other fleet operators will be able to compare their size and operating conditions with our own fleet and, thereby, have a guide that will be useful in planning their own building arrangements and required shop equipment.

Our fleet consists of 295 light trucks, 161 trucks 1½-ton and over, 307 passenger cars, four motorcycles and bantam service cars, and 52 trailers. That's a total of 919 pieces of transportation equipment. In addition, we have 289 pieces of miscellaneous equipment ranging from air compressors and lighting units to cable-laying plows, making a grand total of 1208 pieces of transportation and construction equipment.

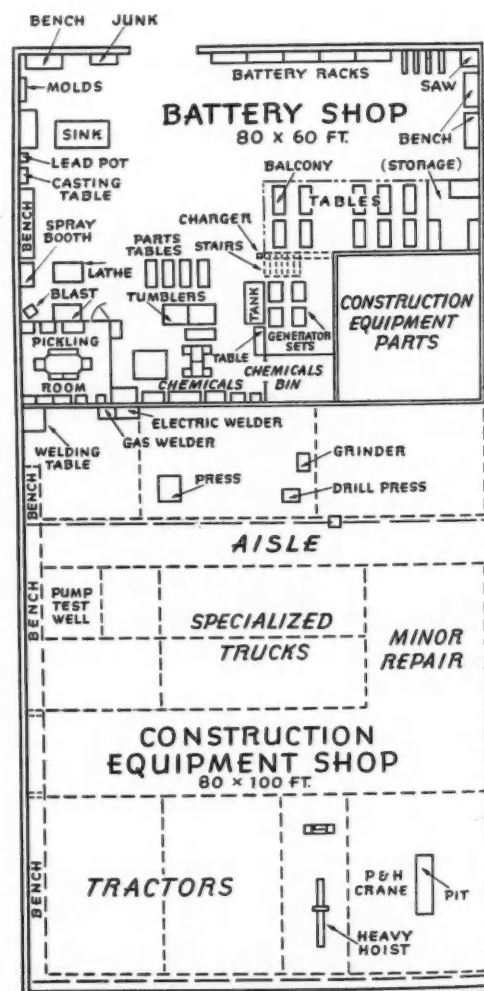
Purpose of the transportation fleet is to service the needs of the power system of the City of Los Angeles which includes

1,000,000 hp. of steam and hydro-electric generators, located within the city and as far away as Boulder Canyon Dam, 9600 miles of transmission and distribution lines and 565,000 customers.

Like most utility fleets, our units are widely scattered at various points within the 450-sq.-mile city and along the transmission lines. The highest concentration is at the home office, where 218 units, or 23 per cent of the total fleet, are located. As this also was fairly central to the geographic distribution of the fleet and in convenient proximity to related shops, it was considered the ideal location for the new shop.

In the performance of its work, the transportation fleet currently travels 600,000 miles per month.

All units of the fleet are handled on a rental basis, that is, furnished as required by the various divisions of the system, and charged for on an hourly basis. Drivers and operators are furnished, as a rule, by the using division. Otherwise, and especially for highway hauling and more difficult jobs, they are furnished by the transportation unit.





It is the general policy of the transportation section to keep all units in a high state of operating efficiency and, also, to see that none of the equipment is overloaded or required to work beyond its rated capacity. By following this policy our record of performance is an enviable one. It is our objective always to see to it that no delay, particularly in a power emergency, may be chargeable to the transportation section. In order to implement this policy, the section inspects each unit at least once a month and the inspector orders such work as may be necessary.

### Shop Operations

IN PLANNING for our new shop, one of the first considerations was the volume of work and type of operations required. From the latest annual report of the section, covering one full year's activity, we secured the following breakdown of operations:

Engines overhauled .....	166
Differentials & Transmissions...	138
Brake jobs .....	746
Electrical & Carburetor jobs....	3,033
Engines tuned & analyzed.....	269
Front End alignments.....	176
Upholstery jobs .....	1,289
Clutches overhauled .....	204
Valve grind jobs.....	84
Tractors overhauled .....	3
Air Compressors overhauled....	3
Motor Patrol Graders overhauled	3
Cranes overhauled .....	7
Cement Mixers overhauled.....	4
Welding Units overhauled.....	3
Tires changed .....	6,169
Tubes repaired .....	4,619
Tires repaired .....	3,112
Tire inspections .....	2,912
Batteries fabricated .....	634
Batteries serviced .....	7,736
Batteries repaired .....	687
*Power Station Battery cells tested and serviced .....	69,896
Crank Cases drained .....	6,204
Crank Cases flushed .....	2,124
Transmissions & Differentials drained .....	1,737

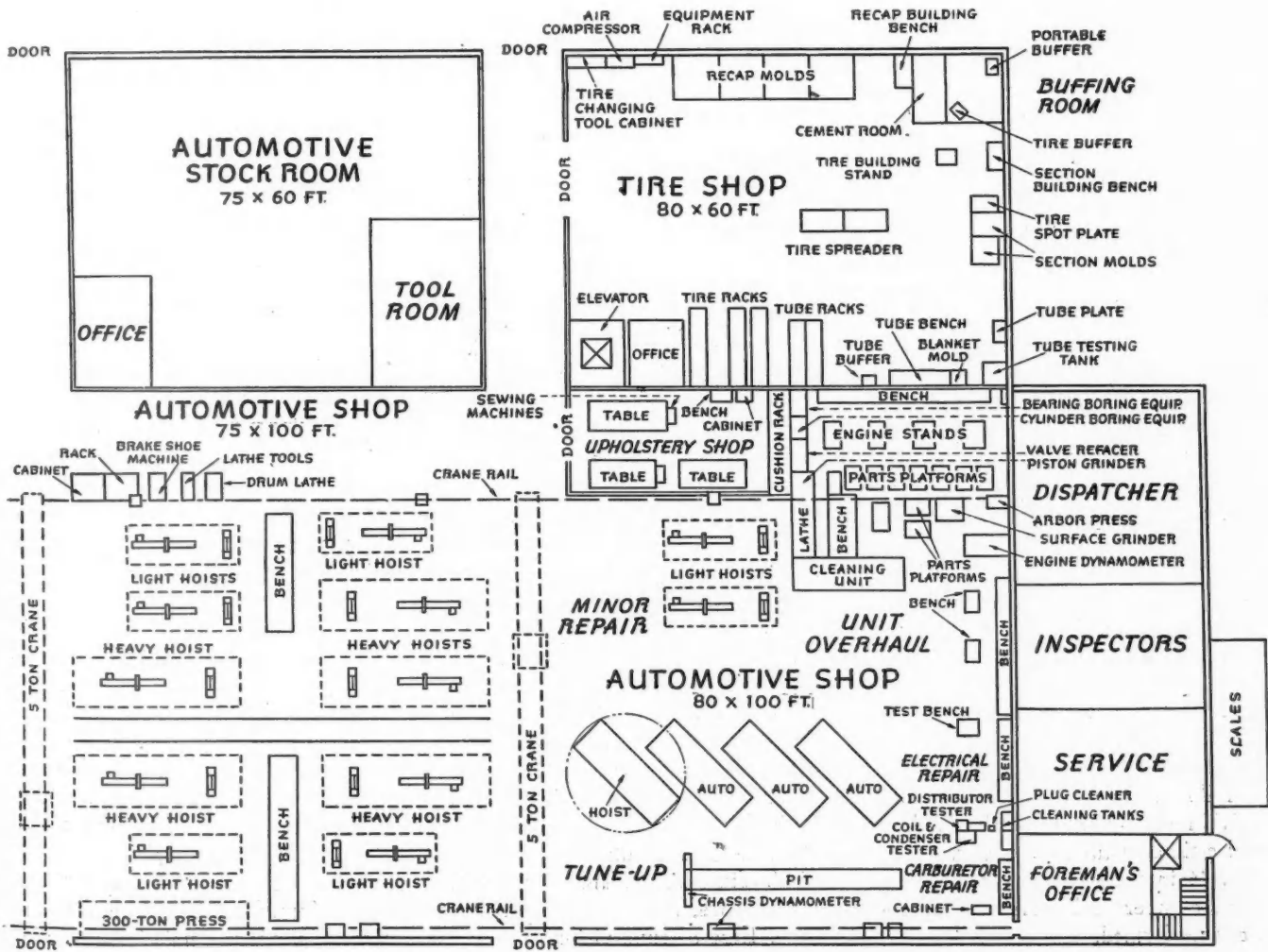


Ellis W. Templin

Units lubricated .....	14,063
Units washed .....	9,121
Units polished .....	1,981

\* This operation is not related to the fleet operation, but to Power Station Operation & Maintenance and is performed by an Automotive group for convenience and efficiency.

(TURN TO NEXT PAGE, PLEASE)



# ... 1000-Vehicle Fleet

(Continued from page 63)

Of course, there are additional breakdowns within each of these various major categories but, basing our decision principally on the major items listed, we determined that the equipment and tools needed to implement the shop operations would be as listed in the table on page 66.

Some of the more important units, and especially those which require specific floor space, may be singled out as follows:

- Piston turning lather.
- Valve facing machine.
- Chassis dynamometer
- Engine dynamometer
- General purpose engine lathe
- Heavy-duty two post hoists
- Steam pressure automotive cleaner.
- Brake lining and grinding machine.
- Electrical test bench.

Tire recap and retread mold.

It will be noted that body and fender repairs and painting were not considered. These operations, in our case, are handled by the general shops. An over-emphasis on battery repairs also will be noted. Our section is charged with the maintenance of the company's vast number of station batteries not connected with the transportation fleet. This factor also accounts for the unusually well-equipped battery rebuild shops.

## Planning the Layout

IN PLANNING the layout and flow of work through the shop, there are six major items which must be carefully considered. We list them in what we believe to be the appropriate order of importance.

1. Problems of unit or parts handling.
2. Shop operating efficiency.
3. Power use efficiency.
4. Shop maintenance efficiency.
5. Orderliness.
6. Ease of supervision.

Other detailed considerations are as follows:

1. Present desired capacity of shop and estimated future capacity.
2. Maintenance schedule to determine number and variety of operations performed.

3. Maintenance equipment and facilities needed for desired capacity of initial shop, including any special provisions or structural features which will facilitate production.

4. A study of maintenance operations to perform on each unit, to check proper spacing of equipment.

5. Time interval required between successive operations to check need for and location of storage space, such as space necessary for vehicles awaiting delivery of replacement units.

6. Sequence of operations in maintenance departments and convenient relationship for progressive flow of materials.

7. Space requirements per department to house maintenance equipment and provide space for aisles, storage or auxiliary departments.

8. A review of various operations entering into the maintenance process to determine whether certain departments should be isolated from standpoint of safety, noise or special process needs. An example is the isolation of battery and plating shop due to fumes and tire shop due to buffing operations.

9. A summary of floor space needs of initial shop and development of a suitable layout for ultimate shop development.

10. Influence of layout on cost:

- a. Handling of work in process.
- b. Length of hauls.
- c. Cost of handling.
- d. Time and volume of work in process.
- e. Ease of supervision.

- f. Convenience of inspection of vehicles and work in progress
- g. Investment in equipment.

## Location and Construction Details

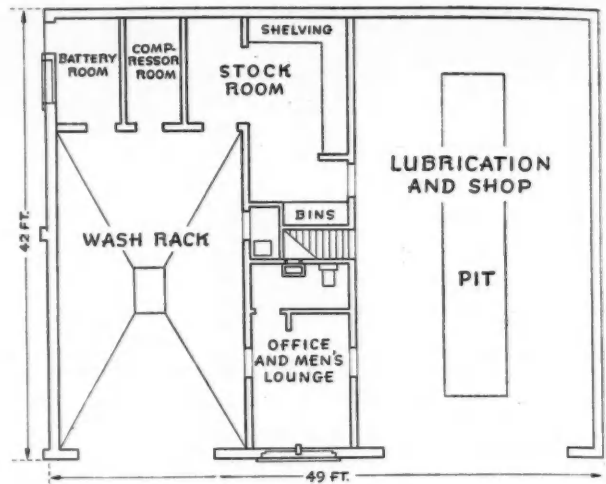
IN ADDITION to the factors enumerated above, when a new building is to be constructed the following additional items must be given adequate study and determination before design and construction begin:

1. Location.
2. Building codes.
3. Materials.
4. Employee services
5. Facilities.
6. Heat, light, ventilation and sanitation.
7. Site and surroundings.
8. Costs.

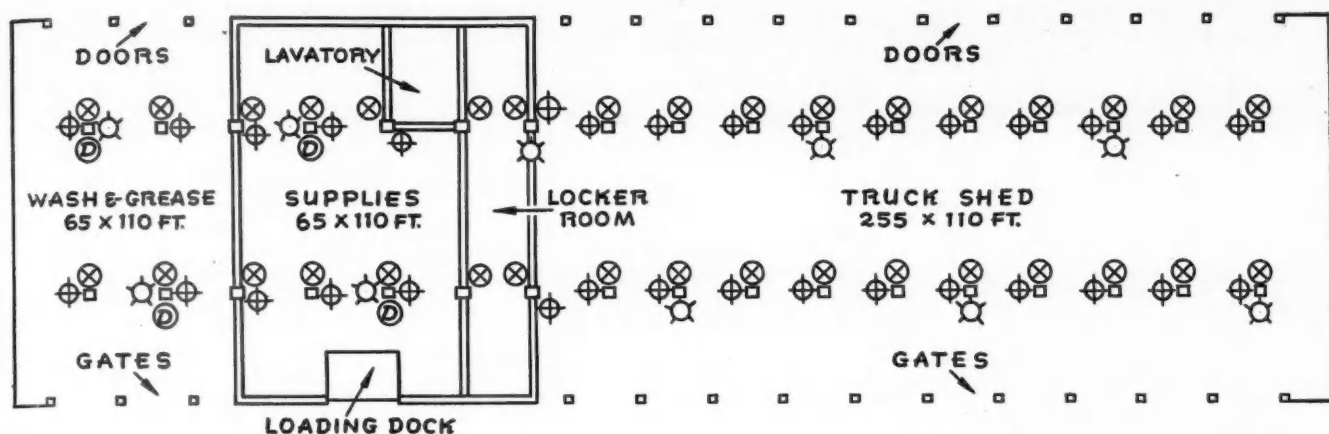
## The Automotive Shop

AS A result of careful consideration of all these factors and after soliciting suggestions, which proved invaluable, from every interested employee, we evolved the plans shown in the accompanying drawing. The main building is to be a modern one-story, fire-resistant structure with concrete floor, masonry walls, saw-tooth roof of structural steel with wood sheeting and sheet asbestos covering, equipped with sprinklers throughout. Its dimensions are approximately 265 x 160 ft. with a two-story, all concrete office building, approximately 35 x 100 ft. attached at the right hand side.

It was developed that operations causing fumes, smoke, steam, dust or other obnoxious emissions would



OUTLYING SERVICE UNITS will be based on this plan. A balcony covers all but wash rack and shop areas. All major repairs will be routed to main shop



**LEGEND:** ⊕ COMPRESSED AIR ⊗ CONVENIENCE OUTLET ⊙ DRINKING FOUNTAIN ☆ WATER

**SERVICE AND STORAGE BUILDING**, adjacent to Automotive Shop, will handle washing, lubrication, minor tire repairs and daily inspections. The storage shed, open on one side, will house 125 home-based vehicles. Dimensions: 385 x 110 ft.

have to be isolated or so fitted up that such objectionable conditions would not interfere with other operations and especially not interfere with precision operations.

The running in or tryout of engines in the chassis on the floor introduces the problem of elimination of the exhaust gases by connection to a vacuum channel, necessarily under-floor.

The problem of handling units and parts from one place to another in the shop, indicates the use of overhead traveling cranes and an essentially smooth and unobstructed floor so that suitable auxiliary carts or trucks can be used as conditions require. This type of floor not only facilitates supervision, cleanliness and orderliness, but is much more efficient in the expense of labor than one having numerous pits.

Suitable aisle-ways and two main through-passages are provided in order that vehicles can enter and leave from either side of the shop and, when in place, parts or units may be removed efficiently and transmitted to the appropriate shop for work and returned for reinstallation.

Tool cages, parts storerooms, shop offices, employee service facilities are located in most convenient central positions for serving the whole shop.

The shop area of the main building is to be served by two 5-ton overhead traveling cranes of approximately 80-ft. span (wall on street side to center row of posts) 18 ft. 6-in. clearance under the hooks, controlled from the floor.

The units to be accommodated in the main building are automotive repair, construction equipment repair, battery rebuilding and plating and tire shops, and automotive parts storage.

A basement room is to be provided under the tire shop suitable for current storage of tires and, if possible, space for the air compressor, electric vault, and air conditioning unit for the Transportation Office.

The lavatory and locker room for the employees in the shop building is to be located on a mezzanine floor above the automotive parts store room.

Post arrangement may be one row in the middle of the building lengthwise, four in number.

The number of employees on duty any one shift is estimated to be 46 to 64.

Heating for the whole of the shops building is desired to be floor heating, augmented by unit heaters as needed.

Convenience outlets and services are required and have been carefully considered in the plane. In addition, pipe line connections for supply of oil from the service unit, will be required.

A 1-ton capacity elevator is proposed for the tire shop to carry tires, and other materials or parts to the basement below.

Eight 9000-lb. capacity and six 40,000-lb. capacity motor vehicle hydraulic hoists will be required in lieu of pits. However, one pit will be required for chassis dynamometer and

another in the construction equipment shop for inspection of crane chassis and the like.

Lighting is to be of sufficient intensity as to permit close night work.

#### The Transportation Office

**THIS** building, adjoining the Automotive and Construction Equipment Shops building, is to house the transportation offices, superintendent of transportation, clerical forces, truck dispatchers, inspectors, service foreman, and the general foreman of the Automotive and Construction Equipment shops.

The building is to be modern in every respect, sound-proofed, well-lighted, and air-conditioned (reverse cycle system suggested).

The number of employees estimated to be on duty during any one shift is 10 to 30 male and female on the upper floor, 12 to 16 all male on the lower floor.

A freight and passenger elevator is to be provided for service between the two floors.

A truck weighing scale will be provided alongside of the building with weighing equipment available in the truck dispatcher's office.

#### Service and Storage Building

**FOR** a fleet of the type in question, various service facilities are needed if the running repairs, adjustments, washing, lubrication, and other service operations are to be performed under good and efficient working conditions. Much of this work is done at

(TURN TO NEXT PAGE, PLEASE)



# ... 1000-Vehicle Fleet

(Continued from page 65)

night especially on the "swing" shift and, even in Los Angeles, workmen must be provided with space that can be closed in at times and heated.

For this purpose and for the storage of 125 vehicles a separate building is to be constructed adjacent to the main shop. The general layout is shown on page 65; the dimensions are approximately 385 x 110 ft., including the storage shed.

This building is subject to the same code limitations as the shop's building. A large part of it, however, is used for truck and automobile storage, providing easy entrance on the yard side and doors opening for exit to or entrance from the street.

The type of building and construction are determined to be monitor roof, concrete floor, masonry walls (at least 25 per cent of the exterior must be walled in), structural steel frame, roof of wood sheeting covered with sheet asbestos.

In this building, it is proposed that the trucks enter from the lot side and pass through to the street or vice versa. For this reason, suitable easy opening doors will be necessary on the street side and the lot side will be entirely open.

Suggested post spacing is at 20 ft. intervals lengthwise of the building (to allow two rows of trucks between each pair of posts and two internal rows). In this feature it would be desirable to have the row of posts along the open side set back somewhat (10 ft. possibly), to facilitate exit or entrance of trucks without snagging the posts. This will necessitate a cantilever roof. It is expected that posts will be required along the street side.

Compressed air outlets for inflating tires are desired at all of the posts through the middle of the truck shed proper. Electric convenience outlets are desired also at each of the posts in the middle of the truck shed proper. Lighting can be general overhead lighting with several circuits. Occasional drinking fountains are desired.

The westerly end of the truck shed building is proposed to be used for servicing operations, mainly washing, greasing, gassing, and oiling of trucks and cars. This space is 65 ft. x 110 ft., with suitable closures on the street side so that vehicles can enter from the street, and exit either straight through or out to the westerly side, but with closures on all sides so that the unit may be entirely closed during winter months, but open during summer months.

It is expected that 10 to 15 men may be on duty in this unit at any one shift.

Heating may be done by unit heaters. Two hydraulic hoists (one 9000 lb. capacity, one 40,000 lb. capacity) will be required for washing and steam cleaning operations.

Two hydraulic hoists as above will be required for greasing operations. At the anticipated four posts in the middle, compressed air outlets, electric convenience outlets, two drinking fountains and water outlets will be needed. Special electric, water and sewage arrangements will be required for the steam cleaning and washing facilities. Lighting should be intense and suitable for night work.

An island gassing, oiling and watering station may be required in the yard as auxiliary to this unit.

Between the service space and the truck drivers' locker room there is another space of 65 ft. x 110 ft., which is proposed to be used as a supply room suitable for storing current supplies as used by the trucks and drivers and facilities for making light repairs to skid chains, jacks and the like.

The floor of this unit is to be constructed at loading dock height, with an unloading pocket on the street side and a ramp on the lot side. Office space shall be provided.

Lavatory and locker facilities for the personnel in both the Service and Supply units and for truck drivers should be provided at one point convenient to all.

(TURN TO PAGE 74, PLEASE)

## SHOP EQUIPMENT AND TOOLS (One each unless otherwise noted)

### TUNE-UP EQUIPMENT

Dist. Point Spring Seals	Dynamometer (Chassis)
Ignition & Valve Timing	Exhaust Gas Analyzer
Fixtures	Dynamometer (Engine)
Ignition Timing Fixture	Electrical Analyzer
(for Fords)	Compression Tester
Coil & Condenser Tester	Compound Pressure &
Thermometer (0-500	Vacuum Gage
deg.)	Thickness Gage
Ignition Timing Light	Vacuum Gage

### UPHOLSTERING EQUIPMENT

Sewing Machines (2)	Ladder (2)
Saw Horses (4)	Rack
Tables (3)	

### CLEANING EQUIPMENT

Steam Cleaner	Hot Tank
Spray Gun	

### CARBURETOR EQUIPMENT

Carburetor Tools (3)	Cleaning Tank
(One each for Carter,	Fuel Pump Tools
Stromberg & Zenith)	Test Bench

### ELECTRICAL EQUIPMENT

Soldering Iron	Cleaning Tank
Screw Driver	Test Bench
Magnet Charger	Gear Press
Winding Tester	Growler

### IGNITION EQUIPMENT

Dist. Point Spring Seals	Electric Eye Headlight
Coil & Condenser Tester	Tester
	Distributor Tester

### BRAKE EQUIPMENT

Barrel Wrenches (all	Wheel Bearing Packer
sizes)	Pullers (all sizes)
Brake Shoe Lining Machine	Wheel Bearing Washer
Brake Drum Lathe &	Brake Lining Clamps
Attachments (4)	Brake Cylinder Hone
Hydraulic Brake Cylinder,	Brake Grinders (2)
Go & No-Go	Round Up Gage
Gages	Garage Jacks (2)
	Stands (24)

### TRANSMISSION OVERHAULING EQUIPMENT

Transmission Jacks (2)	Pullers
Chain Fall	

### DIFFERENTIAL OVERHAULING EQUIPMENT

Gages Ring Gear &	Press (300-ton)
Pinion	Axle Pullers (2)
Stands (shop made)	Bearing Puller

### WELDING EQUIPMENT

Electric Welder	Gas Welder
Gas Welder Cart	Anvil
Welding Table	

### FRONT-END OVERHAUL EQUIPMENT

Straight Edges (2)	Protractor
Spirit Levels (2)	Trams (2)
Friction Board	

### ENGINE OVERHAUL EQUIPMENT

Bushing Grinder &	Wire Rope Slings (6)
Attachments	Piston Grinder
Boring Bar (for Bell	Drill Press
Housing)	Buffer
Valve Seat Reconditioner	Grinder (2)
(2)	Bench Drill
Con Rod Straightening	Valve Facer
Press	Cylinder Hones (2)
Water Pump Refacing	Ring Compressor (2)
Tool	Lapping Plate
Piston & Con Rod	Ridge Grinder
Aligner	Valve Spring Tester
Valve Guide Reamers	Surface Grinder
(set)	Engine Stands (5)
Dial Indicator Gage	Arbor Press
Ring Groove Cleaner (2)	Bench Grinder
General Purpose Lathe	Surface Plate
Tension Wrenches (2)	Ridge Reamer (2)
Cylinder Boring Bar	Valve Lifters (3)
Bearing Boring Bar	Valve Grinders (4)
Engine Benches (2)	Oil Pan Gages (3)
Dynamometer (Engine)	

### TIRE SHOP EQUIPMENT

Recapping Mold Pass.	Head & Sidewall Spot
Car (4)	Plate
Recapping Mold truck	Buffing Unit
Tires (4)	Air Compressor
Section Mold Pass. Car	Pedestal Grinder
(3)	Valve Stem Vulcanizer
Tube Plate Vulcanizer	Tire Building Stand
Flexible Shaft Buffer	Tire Spreaders (2)

### BATTERY SHOP EQUIPMENT

Benches & Tables (several)	Shot Blast Units (2)
Motor Generator Sets	Plating Tanks (3)
(4)	Buffing Lathe
Pickling Tanks (several)	Grinders (several)

## TRUCK TIRE LEASING

(CONTINUED FROM PAGE 45)

ing were found. In any event, the interest charge on such financing would be incorporated into the charges made to the truck operator.

### Tough on Tire Dealer

**A**NOTHER angle the tire companies are not overlooking is that if tire leasing should become common, the truck tire dealer, together with the valuable services he performs, probably would be washed out of the picture, since almost none of them has the facilities to service a lease contract. As a result, truckers who wished to continue buying outright and maintaining their own tires would not have dealers available to handle their needs. Another possibility is that legislation might be enacted in Washington, sponsored by dealers, prohibiting direct dealings between tire companies and truck operators.

### Individual Program Best Bet

**T**HE cost of administering the contract and maintaining the tires would be such that they would reflect the cost of the present purchase price of the tire, plus all services required. In other words, the company would set the rates to cover its normal profit rate on the manufactured tires, plus servicing costs. They say that the best bet for the trucker is to buy his tires at the best possible price he can bargain for (and he is getting into a good position to do that with supply and demand coming into balance), and then follow a careful program of tire maintenance. A good manager can do this at a lower cost

than the tire company can do it for him under a leasing program.

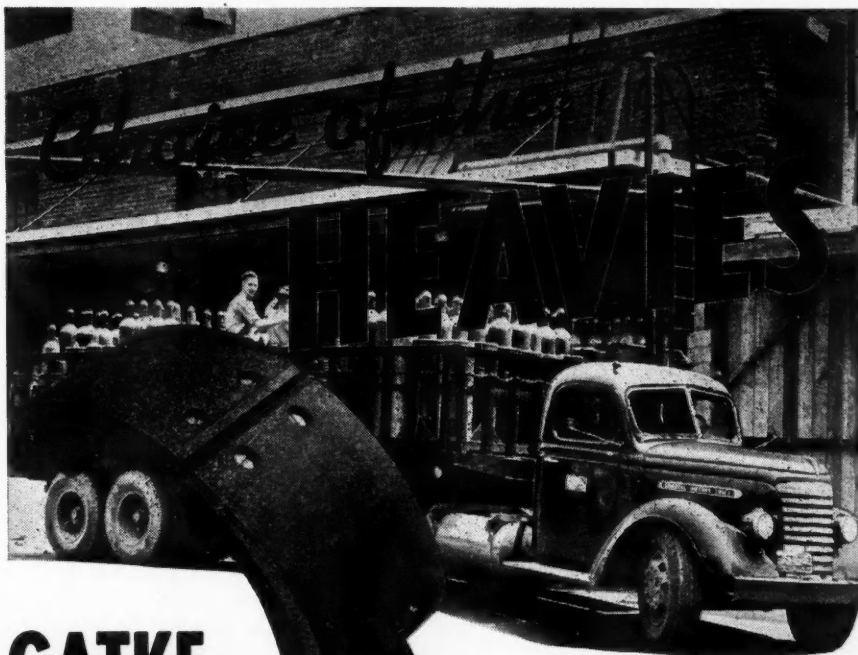
### Services Charged to Operator

**A** CARDINAL point in the tire companies' view on tire leasing plans is that such an agreement can effect no savings that the truck operator cannot himself achieve through a careful tire pm. They point out that under a leasing program, the tire company for its own protection must provide a crew to check mileage, maintain the tires,

and perform other functions of servicing the contract, all of which must be charged to the operator. The bookkeeping alone is an item of considerable work and expense. Many of the functions performed are those which the operator normally performs for himself; often at a lower cost than the tire company can do it because he spreads them among his employees who have other duties.

END

(Please resume your reading on P. 46)



## GATKE Custom-Bilt BRAKE BLOCKS and LINERS

for Cars • Buses  
Trucks • Tractors  
Trailers and all  
other equipment

Fleet Operators Large and Small, all over America, using all kinds of equipment, say the extra performance of GATKE CUSTOM-BILT Brake Blocks helps maintain schedules and keep equipment on the road with less maintenance time.

The smooth, non-grabbing action with maximum stopping power, uniformly maintained at all service temperatures, saves tires and reduces driver fatigue. Long wear life assures extra miles of dependable service between adjustments.

Results talk. Use GATKE CUSTOM-BILT Brake Blocks for your next five relines and compare performance with the best you ever had.

Ask your GATKE Jobber or write.

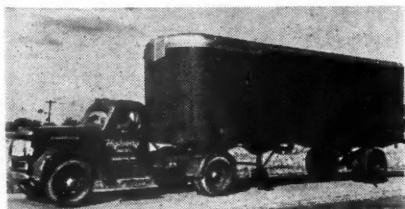
**Gatke**  
CUSTOM-BILT

## BRAKE LININGS

BLOCKS SETS ROLLS SHEETS

**GATKE CORPORATION**

228 N. La Salle St., Chicago 1, Ill.



All Highway van-type "Clippers," "Freightmasters" and "Warehousemen's" van units now coming off the production lines of the Highway Trailer Co. are provided with a distinctive new wind-splitter dome and triple mounting. This new development is said to provide fine appearance and rugged durability, giving quick identification of Highway Trailers

Use of aluminum has cut as much as 4500 lb. in a truck combination; channeled floor permits ventilation of cargo. Folding bulkhead and dry-ice blower provide reefer facilities

by WARREN E. CRANE



## CONSOLIDATED Builds

# Lightweight Reefer-Freighter



*Fig. 1. Aluminum trailer floors are of channel construction and are hinged at sides so they can be lifted out of the way during cleaning operations*

**P**ETER JOLLY, head of Consolidated Freightways' body shop, has stepped up the company's body production 25 per cent and, at the same time, effected a number of striking innovations in truck and trailer body design. By unique methods, Jolly and his men have eliminated all excess weight by as much as 2000 lb. per body without sacrificing strength or durability. This, in a truck and trailer combination, nets a weight saving by as much as 4500 lb., in comparison with comparable standard equipment.

Professional body builders openly admit the superiority of the company's bodies and claim that they are the finest in the world.

### Channeled Aluminum Floors

**P**ETER JOLLY also designed a new type of floor for truck and trailer bodies. It is made of aluminum and is considered to be one of the most important forward steps in body construction since the innovation of aluminum body construction a few years ago.

As shown in Fig. 1, the floors are of channeled construction. The use of aluminum saves 700 to 800 lb. per body. Furthermore, they are easier to wash out than any other floor.





## Combinations

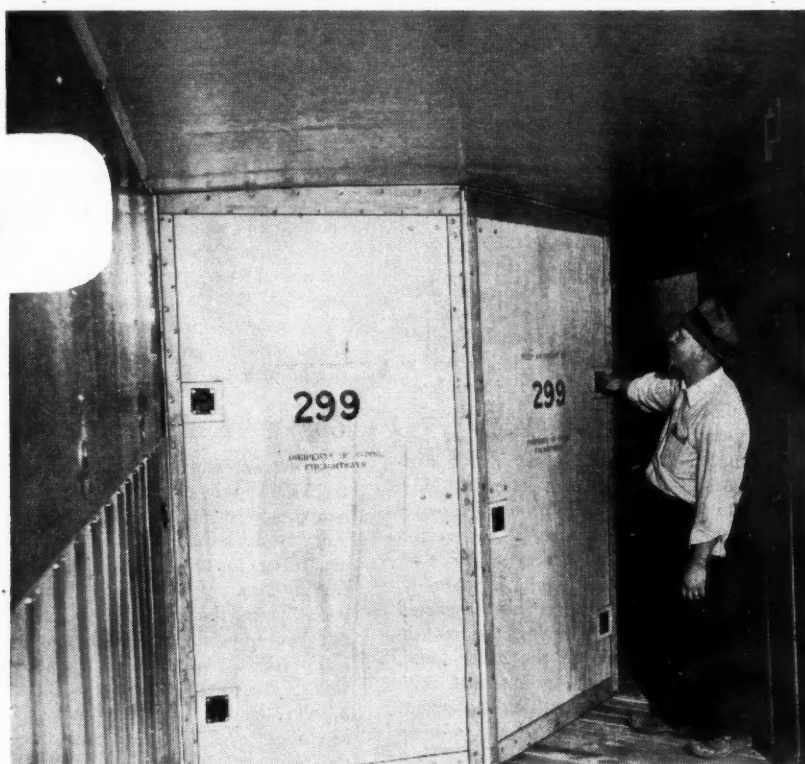
Wood racks, mounted on the floor, take the actual wear and tear. They are hinged at the sides and stand out of the way during cleaning, as shown in Fig. 1. When in the down position, the stringers of the floor rest in the channels.

The racking is laid diagonally, which makes hand-trucking easier and triples the life of the racks. When worn, racks are replaceable, of course.

Under the floor, there is a 2-in. layer of insulation. Sides, tops and doors of bodies contain 4 in. of insulation.

### Folding Bulkheads

**C**HANNELING of the floor provides ventilation of freight that is to be cooled or refrigerated in transit. On the front wall of the body is a dry-ice blower and beneath this is stored a folding bulkhead which is used to separate refrigerated freight from other freight. The bulkheads always travel as standard part of the equipment.



**Fig. 2, top.** Part of Consolidated's reefer fleet loading at a Western dock.

As mentioned, the folding bulkhead is used to separate perishable from non-perishable freight. Fig. 3 shows Peter Jolly, who developed the idea, placing the bulkhead in position. It may be stationed in any part of the body. The edges are canvas-covered sponge rubber to permit a compressed fit all around, making the forward virtually airtight. Five flush-type handles are built into the bulkhead to permit easy handling and positive closing.

**Fig. 3.** Insulated bulkhead used to separate refrigerated freight from warm freight. Edges of partition are of canvas-covered sponge rubber



**Production Picture Still Dark . . . Truck Prices May Go Up . . . 60,000 Trailers This Year . . . Ford Rating Upped . . . Fleetmen Give SAE Pointers . . . Tire Price Drop?**

### **Production Picture Still Dark**

It gets disheartening as well as monotonous to open this column each month with a dark brown description of truck production—or lack of it. A few weeks ago, it looked as though production would get a kick in the pants instead of the teeth by now and that we could report truck plants chewing up materials and spitting out trucks at a merry clip. But the dream turned out to be a nightmare and it's the same story this month as always—strikes, shortages, and "shutdowns."

Ford went down the middle of May when the supply situation became so fouled up that even the expensive improvising that had kept lines rolling would no longer suffice. At the time of the shutdown, 42 suppliers were affected by labor trouble, and a week or so later the number had risen to 52. General Motors Truck division also had a bad time of it during May. It had to pinch off truck production early in the month when the supply of crankshafts from Houdaille-Hershey was cut off by a strike. International, Diamond-T, Autocar, Reo, and Federal also reported trouble with suppliers during the month. Chevrolet and Dodge, on the other hand, have been able to keep going, but even their production was nothing to shout about, and it was touch and go to keep ahead with supplies. The Houdaille-Hershey strike is reported settled as of the end of the month, which will allow GMC to start again and may have considerable influence in getting Ford lines rolling. The truck makers are hopeful, but not optimistic, that the major parts suppliers will have made their peace with labor and that something like volume production will come in a matter of a few weeks. They point to the stiffening attitude of the President toward labor and are hoping that it will have a dampening affect of the truculence of labor leaders.

### **Truck Prices May Go Up**

Truck buyers are anxious, of course, to know which way prices will jump under the new truck pricing order which came out of its shell May 18 after several months

**by LEN WESTRATE**

**CCJ Detroit News Editor**

of incubation. It looks now as though they may have to wait awhile for the answer, because the manufacturers are gun-shy about making any predictions. One spokesman made a private guess that prices would go up in view of the recent healthy boost given passenger cars. At any rate, the manufacturers are to submit costs and new prices to OPA for approval. Until they get either approval or rejection, the present prices are to stay in effect.

### **60,000 Trailers This Year**

If the automotive industry can make the trucks to pull them, the trailer industry can provide users with nearly 100 per cent more trailers than were produced in 1941, according to the Truck-Trailer Manufacturers Assn. If conditions stabilize in the near future, the statement said, the industry could produce 60,000 motor freight trailers this year. The previous peak year was 1941, when output was in excess of 32,000. Present manufacturing facilities are about five times greater than before the war, and labor relations are "at least no worse than average," the statement reported.

### **Ford Rating Upped**

When equipped with suitable heavy-duty equipment, the 1946 Ford truck now carries a 2-ton rating, says an announcement from J. D. Ball, sales manager of the Ford truck division. The rating applies when the unit is furnished with a heavy-duty double channel frame, power brakes, two-speed axle, and 8.25 x 20 10-ply dual tires. The conventional model has a gross vehicle weight of 14,500 lb.; the cab-over-engine job, 15,000 lb. Ball says that the 100-hp. V-8 and the in-line six engines now are available in the trucks, and that additional engine sizes are planned for next year. Reports here have it that the Lin-

coln engine will be used in the 3-ton jobs Ford is said to be planning for introduction either late this year or early in 1947.

### **Fleetmen Give SAE Pointers**

Truck operators attending the summer meeting of the Society of Automotive Engineers got in a few good licks when they laid on the line their ideas of what the industry would like in commercial vehicles. Ted Rodgers, of ATA, told the engineers that operators would like to see a reduction in time required for maintenance, and that fewer lubrications points, especially for trailers, and provision for inspection of brake linings without removing wheels would be helpful. Another operator said that western operators are looking for trucks with 250 to 300 hp. engines and hydraulic drives. He urged that parts which require attention be made easy to reach and that those subject to wear be provided with replaceable bushings, plates, or shafts. Other features requested were: interchangeability of parts between truck and trailer axles, installation of periscope-type rear view mirrors, more rugged accessories, overhead rear doors, easier steering, faster filling fuel tanks, and larger tires equipped with puncture-sealing tubes. A Chicago operator plugged for standardization of truck models to include uniformity of dash arrangements, transmission shifting patterns and clutch and brake pedal pressures. He said that there are more than 1000 different sizes of brake linings for commercial vehicles, some varying only a fraction of an inch in dimension, and that a dozen sizes should fill the needs of all commercial vehicles, trucks, tractors and trailers.

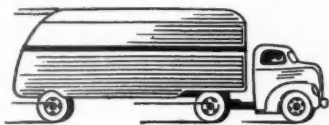
### **Tire Price Drop ???**

At least one item of trucker expense appears to be leveling off or headed downward. A report from New York says that some independent tire dealers are breaking away from ceiling prices on certain large size truck tires. The down-trend in prices, ranging from 10 to 20 per cent on some of the slower moving sizes, is the first since before the war.





## EXIDE...the motor truck battery that keeps operating costs low...



Records of fleet owners... with trucks of every size and in every kind of service... show that Exides surpass in each of the four basic requirements of a motor truck battery. Exides assure peak battery performance... long-life... low maintenance... and less cost per mile of operation.

Several factors combine to make Exides the most dependable batteries for motor truck service. Fifty-eight years of battery building experience supply the know-how of battery design and construction.

And Exide engineering and manufacturing skill provide the starting power and ruggedness that assure trouble-free service for many extra months. When you buy an Exide, you buy to last... and you buy to save.

**Exide**  
EXTRA DUTY  
BATTERIES

THE ELECTRIC STORAGE BATTERY CO., Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto



## ... 1000-VEHICLE FLEET

(CONTINUED FROM PAGE 66)

A mezzanine floor is to be provided, approximately 15 ft. x 50 ft., between the posts along the wall between the service and supply units.

### Outlying Service Units

AT OTHER locations where substantial numbers of vehicles are headquartered, new and improved quarters are being planned.

A typical building for this purpose is shown with considerable detail in Fig. 3 on page 65.

### Economics

IT MAY well be estimated that the buildings here planned would not only serve their purposes well, but would provide nearly ideal working conditions around the clock when necessary.

So far we have not estimated the effect upon shop costs due to the cost of the new construction. The natu-

ral question is, "Will the investment in the new buildings and equipment be profitable?"

First we will discuss the shops buildings. The general specifications and data given here were referred to Department Engineers and Architects of the Design and Construction Division for estimate as to total cost. This division designs and constructs department buildings and other facilities. Their response was an estimate of approximately \$900,000 complete with built-in facilities as called for.

In the department the main concern is what effect will that have upon the shop rates per hour of shop labor.

This question was given special study—taking into account the proposed additional new shop equipment, cost of land and the building cost referred to above and the estimate that the building may be completed January, 1950.

The shop rates so calculated, based upon present wage rates and including all overhead of the division, but none other, are as follows:

Fiscal Year	1946-47..	\$2.25	per hour
"	" 1947-48..	2.28	" "
"	" 1948-49..	2.28	" "
"	" 1949-50..	2.35*	" "
"	" 1950-51..	2.42†	" "

\* 10c. per hour increase over '46-'47

† 17c. per hour increase over '46-'47

These computations have not taken into account any increase in efficiency of performance due to the improved facilities and consolidation of operations. In order to arrive at figures, a committee was called together. The various factors were discussed and the overall improved working efficiency of the shop estimated for each. The factors were: hoists vs. pits; overhead cranes vs. none; clear and consolidated working space vs. scattered and interrupted space; cleaning facilities at hand vs. going considerable distances; all operations consolidated in one building vs. scattered operations; good heat, light and ventilation vs. very poor facilities; chassis dynamometer vs. road testing; engine dynamometer vs. none.

The considered conservative opinion of the committee was that the new facilities would improve the overall working efficiency of the shop by at least 32 per cent and possibly 50 per cent or more.

The minimum figure applied to the (TURN TO PAGE 98, PLEASE)



## SOL-SPEEDI-DRI WORKS ... WHILE YOU WORK IN SAFETY!

No costly machinery ... no trained cleaning personnel ... is required to use SOL-SPEEDI-DRI. Just spread it around. That's all! Effective? It's doubly effective! SOL-SPEEDI-DRI lays a fall-proof, magic carpet of safety underfoot. Then, after it's done its work, sweep it up ... and your floors are left clean and safe.

Yes, SOL-SPEEDI-DRI is just what the doctor ordered for slick, sick floors. If the floors of your garage, bus- or truck-terminal, or shop are ice-slick with oil- and grease-deposits ... the answer is SOL-SPEEDI-DRI, the automatic way to shop-safety!

### SUPPLIERS:

East—Safety & Maintenance Co., Inc., New York 1, N. Y.  
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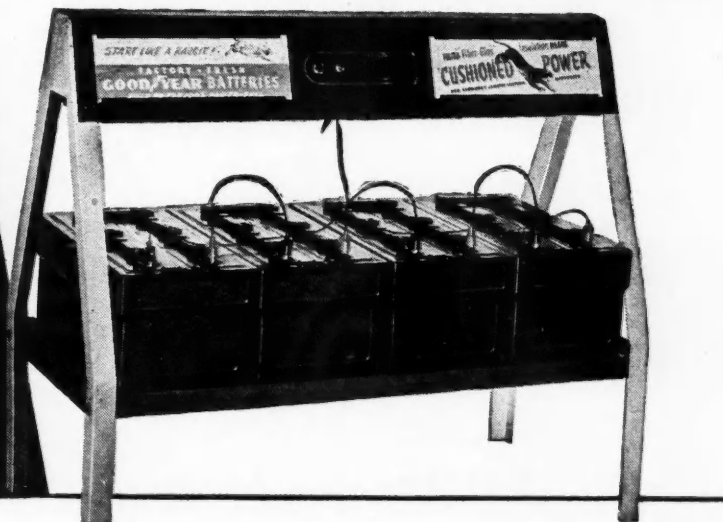
**SOL-SPEEDI-DRI**  
OIL AND GREASE ABSORBENT

Pin your card to this advertisement and mail today for full details and a free, generous sample of SOL-SPEEDI-DRI.



# BATTERY BONUS for FLEET OWNERS!

Now you can get  
free loan  
of the new  
**GOOD YEAR**  
truck battery  
**POWR SAVR**  
keeps batteries con-  
stantly at power-peak  
right in your own  
garage!

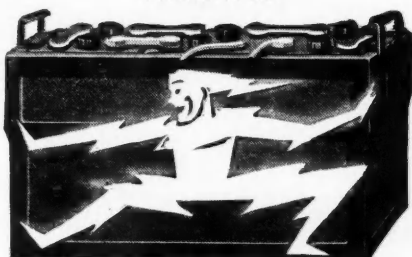


## RARIN' TO GO!

**GOOD YEAR YKL BATTERY**

**POWER-FULL**

— kept at power-peak by  
PowR SavR



**ORDINARY BATTERY**

**POWER-SAPPED**

from standing idle on the shelf



UNLIKE batteries that go stale and lose power from standing idle, Goodyear's heavy-duty YKL is always factory-fresh and packed with punch at purchase — because your Goodyear dealer keeps it on constant power charge on the PowR SavR. And because of its *cushioned power construction* — felted Fiberglas mats between the plates — the YKL lasts far longer. It's the power-full, longer-life, heavy-duty battery that means sure, quick starts right from the start — and long after!

PowR SavR, YKL—T.M.'s The Goodyear T. & R. Co.

**YKL  
BATTERIES**

—for buses, trucks, tractors

**GOOD YEAR**

THE GREATEST NAME IN RUBBER

# C.C.J. QUIZ

by ROBERT F. BAHL



Answers on Page 87

Far fewer accidents are caused by defective mechanism on vehicles than are caused by what might be termed "defective mechanism" on the driver. This month's quiz asks you 10 questions about the physical limitations of drivers. Counting 10 points for each correct answer, see how close you can come to reaching 100. This is a toughie: 70 is good, 80 is super, 90 is remarkable and 100 is phenomenal or means you are a safety specialist. Answers are on page 87.



1.

Even though your brakes could stop on a dime, *you* never could. You would have to allow for a certain "reaction time," which for the average driver is . . .

- a. 1/1000 second
- b. 1/100 second
- c.  $\frac{3}{4}$  second
- d. 1/10 minute

2.

What effect does a single drink of alcoholic beverage have on the reaction time of a driver?

- a. Up to a certain point it acts as a stimulant and quickens reaction time.
- b. It slows down reaction time for 3 to 4 hr.
- c. The ordinary driver can absorb a moderate amount of alcohol with no noticeable effect on his reaction time.

3.

On the average, at what age do drivers have the quickest braking reaction time?

- a. 15 years
- b. 23 years
- c. 35 years
- d. 65 years

4.

At 45 m.p.h., the average good driver is focusing his eyes ahead a distance of . . .

- a. 50 feet
- b. 50 yards
- c. 100 yards
- d. almost a quarter of a mile

5.

Color-blind drivers usually compensate for their deficiency by knowing the positions of lights or by watching what other drivers do. On the subject of color-blindness, it is interesting to note that . . .

- a. many more men are color-blind than women
- b. many more women are color-blind than men
- c. there's really no noticeable difference between the sexes.



6.

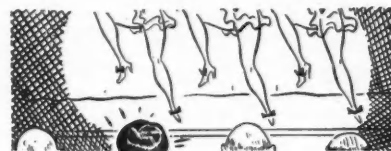
A driver who cannot see to the side of his eyes is said to have . . .

- a. astigmatism
- b. tunnel vision
- c. narrow-sightedness
- d. dichromatopsia

7.

The normal human eye is capable of seeing not just straight ahead, but also to the side; out of the corner of the eye, as it were. Color perception is not equal though. The two colors least seen from the side of the eye are . . .

- a. white and black
- b. green and boxcar red
- c. yellow and blue
- d. light orange and purple



8.

A certain truck driver must drive at night, but he has difficulty seeing in the dark. Which of these would be of help to him?

- a. New glasses
- b. Raw carrots in his diet
- c. More powerful headlamps

9.

When a person's eyes are in motion, what does he see?

- a. Distorted image
- b. Very clear image
- c. Moving image
- d. Nothing

10.

Would you hire a truck-driver who had "stereoscopic vision"?

- a. Yes
- b. No
- c. Should have no bearing on your decision





Studebaker Heavy Duty Model Truck with 12-ft. stake body

## These big, able-bodied Studebakers bear the load and spare the cost

**A**MERICA'S need for top-quality trucks of all sizes is enormous—and it will be some time before supply catches up with demand.

But one of the brightest spots in the picture is the news that more of Studebaker's dependable heavy duty model trucks in several wheelbases are coming off the production lines.

This means that, before too long, Studebaker dealers will be able to supply truck operators with fine new large-capacity Studebakers of tested ruggedness and reliability.

### War-proved strength and stamina

Fresh from its war role as one of the world's largest builders of heavy-duty military trucks, Studebaker has now embarked upon a greatly expanded truck building program for the civilian public. In addition to heavy duty model Studebakers with their sturdy Hy-Mileage engines, de-

signed to haul hefty loads at low cost, the line includes versatile, modern one-ton and half-ton Studebaker pick-ups, too.

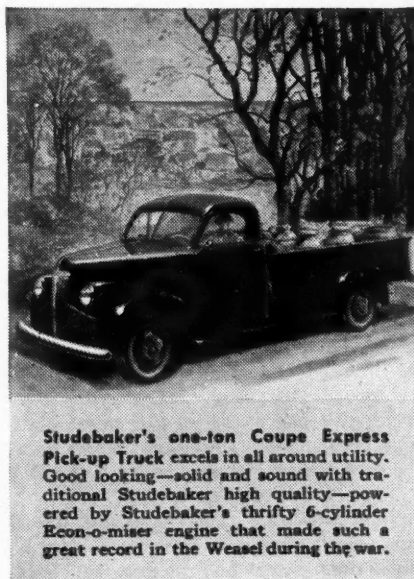
Traditionally fine materials, painstaking craftsmanship and advanced engineering give every Studebaker truck unchallenged value leadership—assure maximum mileage at minimum upkeep expense. And remember, Studebaker's experience in supplying first-class transportation goes back more than 94 years.

Be sure to put these good-looking, brilliant-performing Studebaker trucks first on your shopping list. Drop in now and see your nearby Studebaker dealer about your needs.

## STUDEBAKER

South Bend 27, Indiana, U. S. A.

**BUILDER OF TRUCKS YOU CAN TRUST**



Studebaker's one-ton Coupe Express Pick-up Truck excels in all around utility. Good looking—solid and sound with traditional Studebaker high quality—powered by Studebaker's thrifty 6-cylinder Econ-o-miser engine that made such a great record in the Weasel during the war.



## WASHINGTON RUNAROUND

**Strikes Empty the Barrel . . . Extension of Truck Priorities? . . . Motor Trucks vs. Atomic Bombs . . . Truck Prices to Rise . . . Tire Output Unpredictable . . . Trailer Production Precarious . . . Of Surplus and Scandal**

### Strikes Empty the Barrel

Recent strikes have cut into production of practically everything. Truck production reached a yearly high of 81,282 units in April. This output was achieved only by scraping the bottom of the barrel and despite the industry's prediction of about 106,000 units for May the Civilian Production Administration says the industry would do well to duplicate April's record. Privately, CPA says that it will be July or August until the industry gets back to the April level.

The producers used up their pipelines to turn out the April total of: 31,431 lights; 44,047 mediums; 4456 light-heavies; and 1348 heavy-heavies. Military orders accounted for 2 light-heavies, while 236 in this category went to China. Total production equaled 85.3 per cent of the industry's forecast.

Perhaps the biggest bottleneck is the delay in deliveries of components from suppliers, who have been troubled by the coal strike as well as strikes in their own plants.

### Extension of Truck Priorities??

Housing Administrator Wilson Wyatt is expected to request an extension of priorities for trucks to meet the government housing program, but CPA will continue to do its utmost to dissuade him. Should Mr. Wyatt really believe this course to be wise, he has full power to ask for priorities and could not be overruled by CPA. However, CPA is still committed to consult with the truck industry before any such move is made.

### Truck Prices to Rise

On June 5, OPA explained the new MPR 610 to commercial vehicle manufacturers. At the same time, the producers were requested to file all new price schedules by June 29. One manufacturer, however, had filed his new prices with OPA before the end of May.

Indications are that there will be no appreciable changes. There seemed to be general agreement that the new OPA order

by **GENE HARDY**

CCJ Washington Bureau

would not result in the reduction in prices originally discussed. This is due largely to the steel price increase, wage increases, and higher component prices.

Light trucks probably will not be cut at all, but prices are expected to level off. In the heavier models prices are expected to rise on all models, including those on which controls have been suspended.

Dealers will have to absorb part of the increase on models which require price boosts under the new order. This means that discounts to fleet owners will be shaved the same percentage that dealers margins are cut by the required absorption. The exact amount of the cuts, if any, will not be known until the Congress takes final action on the extension of price controls by OPA.

However, OPA told producers at their meeting on June 5 that for vehicles of 16,000 g.v.w. and under dealers will be required to absorb the increase. This would be about 7½ per cent, the same as that absorbed by passenger car dealers.

Of course, the entire scheme of price absorption depends on the outcome of the Bill before Congress on the extension of the OPA. If the Bill is passed and price controls are removed from the OPA, the dealer price absorption order would be invalidated.

Suspension of price ceilings on trucks of more than 40,000 lb. gross weight, buses, ambulances, hearses, fire trucks, and certain special-purpose trucks, such as tank trucks, garbage trucks, patrol wagons,

snow plows, and street sprinklers was not a complete surprise. It came about as a part of OPA's program to decontrol items which are not important in the cost of living.

In announcing the suspension OPA said the following considerations were the determining factors in suspending ceilings on these vehicles: (1) Scheduled production for the balance of the year has already been sold for the most part at firm prices; (2) Anticipated increases will not be greater than would have been allowed if controls had been maintained; (3) No significant diversion of labor and materials to the manufacturer of the suspended items will take place; and (4) The products do not enter significantly into the cost of living, and the burden of price control is disproportionate to its value in the stabilization program.

The predominating sentiment is that there is a good chance that controls will be dropped on all vehicles of 24,000 lb., g.v.w., to the 40,000-lb. bracket. At the June 5 meeting, OPA fished around to determine what effect this would have on prices. Manufacturers were asked to supply specific data broken down into two groups: 24,000 to 30,000 g.v.w., and 30,000 to 40,000-lb. g.v.w. models. The producers will be required to supply prices as of Jan. 1, 1941; March 31, 1942; current prices for these groups, and estimates showing effect on prices if controls were to be removed.

### Motor Trucks vs. Atomic Bombs

When the first atomic bomb is dropped on Bikini Atoll next month, American trucks and other wheeled vehicles will be aboard ships awaiting a stiffer test than any which these battle-ried vehicles encountered during the war.

It has been made possible for COMMERCIAL CAR JOURNAL to reveal for the first time details surrounding the testing of trucks and other vehicles.

Army Ordnance was given the job of selecting the vehicles now awaiting the first test at Bikini.

Trucks and other equipment will be  
(TURN TO PAGE 80, PLEASE)



## TOUGH LUCK ?.

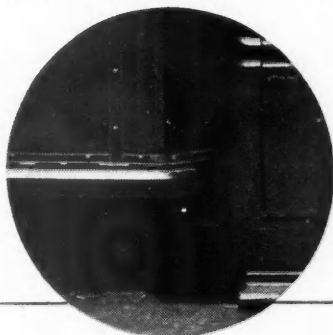
**Well, Tough anyway . . . and Lucky, Too**

A skidding oil tank truck, traveling at high speed, plowed into this 12-ft insulated plywood-lined Ls body. The damage was confined to the point of impact—the rest of the body showed no sign of damage or movement.

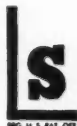
Two men completed the repair job in 6½ hours.

For toughness that protects your cargo—for a type of construction that gives you a lucky break on repair jobs—and, for new over-all operating economy, be sure your next new truck has an Ls body. The Lindsay Corporation, Adams-Franklin Bldg., Chicago 6, Ill.; 60 E. 42nd St., New York 17, N. Y.; or, Lindsay Structure (Canada) Ltd., Dominion Square Building, Montreal.

Photos of Service Tobacco Company truck supplied by Ls builder, Walsh Body and Trailer Co., Somerville, Mass.



# LINDSAY STRUCTURE



U. S. Patents 2017629, 2263510, 2263511  
U. S. and Foreign Patents and Patents Pending

DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY



## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 78)

inspected before the bomb is dropped to assure A-1 condition. They will be studied after the test by qualified government and civilian scientists and technicians to determine the effect of the bomb burst, heat, pressure, radiation and mechanical shock.

This knowledge will prove invaluable to the armed services in the development of military vehicles of the future. With atomic energy looming greater and greater as a force to ease the man's burdens, as

well as to destroy him, the truck producers will undoubtedly make wide use of this information to reach important conclusions which will have a bearing on specifications for certain types of vehicles of the future.

Confronted with space limitations Ordnance selected the following types of vehicles as representative of all types: ¼-ton 4x4 (Jeep); 2½-ton 6x6 (Duck); 2½-ton 6x6, van body, completely equipped automotive repair shop; and the M-29 Cargo Carrier (Weasel).

In addition, 11 other types of wheeled equipment, such as guns and fire control equipment, were included.

Four of each of these vehicles and other

wheeled equipment were shipped to Bikini several months ago. One complete set of Ordnance material will be aboard four different ships, the Nevada, Pennsylvania, Arkansas and Saratoga.

These ships have been arranged so that the vehicles and other equipment will sustain varying degrees of damage. The first of the four ships will be practically on the point of aim, while the farthest ship will be 1000 yd. away.

All vehicles will be on deck and secured, since it is possible that the blast would otherwise blow them miles away. None of the vehicles will be operating, nor will they contain fuel or ammunition. All types of fuel and lubricants are being tested by the Quartermaster General. Various types of rubber in addition to the tires on the wheels are also being tested.

The tests will provide complete knowledge of the effects of atomic energy on trucks and other vehicles for the first time in history. In addition to the vehicles and materials going into them the actual method of construction will be subjected to this severest of all tests.

As soon after the test as it becomes safe to enter the area, an on-the-spot inspection will be made. The vehicles will then be shipped to the Ordnance Research and Development Center, Aberdeen Proving Ground, Aberdeen, Md., for detailed inspection.

The results are obviously unknown, but possibilities are unlimited. Should radiation get into the lubricant in the crankcase, any attempt to operate the vehicle would result in a complete short circuit. If the ignition system became radioactive, the result would be the same. Damage to the battery would obviously render the vehicle inoperable. Any of these developments might eventually revolutionize truck construction.

### Tire Output Unpredictable

The coal strike and its attendant shortages have seriously hurt the tire production record, due mainly to short supplies of bead wire, tire cord and other fabric. On most materials tire producers have been operating on a hand-to-mouth basis.

During the first quarter 3,860,809 truck and bus tires were produced, a 25 per cent increase over the last quarter of 1945.

(TURN TO PAGE 82, PLEASE)



Just completed at Paulding, Ohio, is this 15,000 sq. ft. building of the Grizzly Mfg. Co. It will be devoted entirely to the manufacture of heavy duty brake blocks of ½-in. thickness and greater. Another 40,000 sq. ft. building is under construction at Paulding, which will provide greater facilities for the production of passenger car linings and truck sets

## CONSERVE... Buy EDISON!

Batteries are precious! In the months to come, there may not be enough batteries to go around. Conserve your Edison by installing a regular check-up procedure. The addition of distilled water, a quick or a long charge, *done at the right time*, may give you many more months of satisfying service. Help conserve batteries for American transportation by backing the conservation plans of your Edison supplier.

If you must buy a battery, it will pay you to buy Edison. Edison quality... the quality that assures you a battery as good as the name... has never been sold short to quantity.

You can be assured of our efforts to give you a battery that will consistently continue to be a *quality* battery.

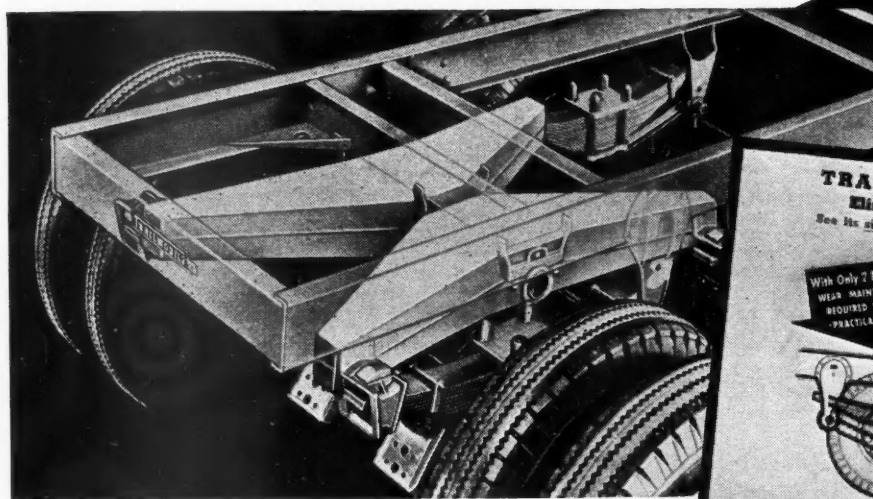
you can always  
rely on an  
**EDISON**

**EDISON**  
BATTERIES

THOMAS A. EDISON, INC., EMARK DIVISION  
PLANT NO. 1, KEARNY, N. J.



# "EASIEST PULL" Now Achieved by EVEN A TANDEM!



## NEW ROCKING EQUALIZERS

**Now give Dual-Axles every  
Extraordinary Advantage of  
Trailmobile's Famed Single!**

Nation-wide the news about it is pouring in. Trailmobile's new concept of double-axle hauling is re-popularizing the tandem!

Even drivers are excited—proclaiming "It pulls as easy as my single" . . . "It's smooth without vibration over roughest ground, regardless of how you 'brake'" . . . "It keeps tires glued to the road!"

So now it is clear that there is no need for a tandem to have countless "extra" parts and complex lubrication. Trailmobile's 2 amazingly simple "rocking beams," inside the frame, maintain a constant equalization of load between both axles, and they do it smoothly,

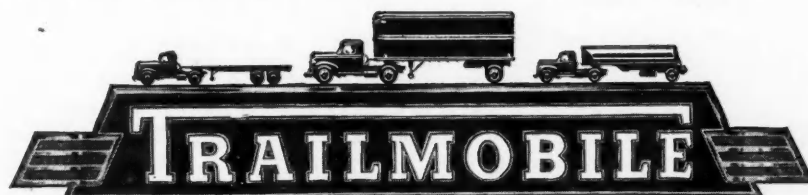
"lazily" distributing shocks and stresses throughout the entire Trailmobile-tandem structure.

It is remarkable, SIMPLIFIED engineering requiring only 2 points for lubrication!—and these points have oversized bearings—within

grease reservoirs. All parts are standard, completely interchangeable, and always available "everywhere"—so "all" the usual, tandem-troubles are now eliminated!

See this example of modern engineering at your nearby Trailmobile Branch. And have men there show you, too, how exceptionally well this tandem cuts operating costs! You will be glad you did!

**THE TRAILMOBILE COMPANY**  
Cincinnati 9, Ohio



*Protecting its 105 Year Reputation*  
— 71 "Homefolks" Service Centers

© 1946. THE  
TRAILMOBILE  
COMPANY



## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 80)

Production may fall off during the last half of the year. At the end of May CPA officials said that another 10 days of the strike would have knocked production into a zooming downward spiral.

With the settlement of the coal strike the outlook is brighter. It seems that all truck tires will be in ample supply by July. Price ceilings may now be lifted

within a short time. Inventories of large size truck tires have already been built up. CPA expected this development some time next month, but it was apparent by the first of May. This will result in concentration on smaller size truck tires and passenger car sizes.

Passenger car tires should be in ample supply by the end of the year, but the chances of getting any natural rubber in these sizes is still in the distant future. Price ceilings would also be dropped.

Natural rubber production is so uncertain that it may be necessary to maintain government controls long after controls on most materials have been lifted.

## Trailer Production Precarious

With trailer manufacturing facilities five times greater than before the war the Truck-Trailer Manufacturers Assn. is predicting an output of 60,000 motor freight trailers this year. Previous peak was 1941 when 41,689 units were produced. However, this estimate assumes readily available materials and continued freedom from major labor troubles.

Biggest bottleneck confronting the industry now is the shortage of softwood plywood. CPA action in freeing 25 per cent of all plywood eases the picture slightly, but many producers are experiencing difficulty in finding enough to keep going.

Newcomers to the industry are having trouble finding steel supplies, as the steel companies are adhering to prewar distribution patterns.

If the expected drop in tire production materializes in the coming quarters, trailer producers will quickly feel the pinch.

Ceilings on original equipment trailer parts and completed trailers is still a fair bet. More will be known about this after the OPA summarizes its meeting with the Truck-Trailer Industry Advisory Committee on June 12.

The first meeting of a newly appointed CPA advisory committee representing truck-trailer manufacturers and truck body builders was held on June 11 to discuss means of easing steel, lumber, plywood, fabric and other shortages. Extension of priorities assistance is a good possibility.

## Parts Shortage Continues

Shipments of replacement parts have increased during the past month, but the shortage has also increased. Major difficulties are the same that are plaguing other industries—materials shortages and strikes—plus the unfair OPA price order on replacement parts.

OPA is moving to remedy the price difficulty by allowing an industry-wide price increase on replacement parts, probably to take effect on or about July 1. Indications are that a 12½ per cent increase will be allowed at the manufacturing level.

The production of more items than were made during the war also cuts into the overall supply. Finally, short runs required for parts for vehicles which should have been off the road a long time ago has also slowed down production.

## Of Surplus and Scandal

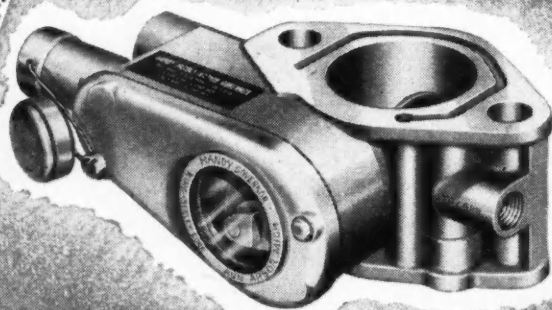
Investigation of department store sales of surplus trucks by the Senate Mead Committee proved nothing more than the fact that the 2½ ton 6x6 is a difficult model to sell. It also re-emphasized the inadequacy of the surplus property act and its cumbersome priority provisions.

The scandal expected to come about as a result of newspaper stories concerning 30,656 vehicles in open storage at Atlanta, of which 25,000 were supposed to be passenger cars, also failed to materialize.

The depot at Atlanta is one of five Ordnance fifth echelon shops used as concen-

(TURN TO PAGE 84, PLEASE)

## THE WAR DEBT WOULD HAVE BEEN LARGER *except for these Governors*



It is always vitally important for a military expeditionary force to conserve the motors and tires of its vehicles, its fuel and lubricant, due obviously to the difficulties of replacement.

• Prewar records show that the use of King-Seeley Governors on trucks accounted for savings of 32% on engine repair, 23% on tire maintenance, 26% on lubricant costs, 15% on fuel, 30% on brake maintenance. • Just how these figures compare with operation of governed military vehicles is not known. But it is fair to assume the differences would not be great. • In excess of 1,100,000 King-Seeley Velocity Governors have been installed on military trucks, ducks and alligators—570,000 on one model of truck alone. • These same governors will later serve as well and with equal economy on commercial vehicles after the war has been won.



**KING-SEELEY  
CORPORATION**  
ANN ARBOR MICHIGAN

MANUFACTURERS OF THE FAMOUS HANDY VISIBLE ACTION AND HANDY VARI-SPEED GOVERNORS



S E R V I N G   T H R O U G H   S C I E N C E

# Fresh as a Daisy



## AIR KEEPS IT SWEET AND CLEAN!

MAYBE Grandma's old horsehair sofa is a collector's gem. But one thing certain... if it were reupholstered with Koylon Foam, it could never have that stale, musty odor that conventional stuffings acquire over the years!

For Koylon Foam "breathes" air...absorbs it in millions of tiny, resilient latex cells—releases it on contact with the body. This constant recirculation of fresh air through Koylon Foam keeps it fresh and clean...rids it of the clinging odors of dust and perspiration.

If you think this is a boon for housewives...imagine what Koylon Foam's cleanliness means to hotel, hospital, airliner, train, and bus operation! Too, Koylon Foam is verminproof.

Here's another dividend you get along with Koylon Foam's *matchless* comfort. It's another reason why we say: If you sell "seats", or "sleep", better sell Koylon Foam!

*Comfort Engineered  
for Sitting and Sleeping*



"U. S." KOYLON FOAM DIVISION • MISHAWAKA, INDIANA



UNITED STATES RUBBER COMPANY

JUNE, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

83

## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 82)

tration points for vehicles coming from demobilized outfits as well as existing Army posts. This depot receives vehicles from the southern states east of Mississippi and south of Virginia. Here they are repaired or rebuilt for eventual re-issue. Those deemed uneconomical to repair are immediately declared surplus.

Of the total at Atlanta only 525 were passenger cars. Only 48 of these were serviceable. Personnel at the center is inadequate to repair the vehicles as fast as

the Army would like to have it done, and they come in faster than they are being issued.

Shortages of men, materials and money will force the Army to declare surplus vehicles it would like to repair and keep to maintain the Army until June 30, 1949. Congress was not asked for funds for new vehicles for the fiscal year 1947.

Army Ordnance says surplus truck declarations have reached their peak, but small declarations of all sizes will be made from time to time for the reasons mentioned above.

The Army has approximately 300,000 vehicles in the United States. Only 40,000 of these are new. Unless pressured into it,

Ordnance will not declare surplus any of the new vehicles.

If Congress provides sufficient funds (this is not likely) to repair all the vehicles in repairable condition and there is no pressure from over-ambitious politicians to declare them surplus, the Army will keep all the trucks it has to meet requirements through June 30, 1949. Even so, it would be necessary for Ordnance to procure some new special-type vehicles during the fiscal year 1948.

While surplus declarations will decline in the coming months, sales will continue high for some time. Since V-J Day sales have amounted to 145,000 out of total declarations of 187,644.

Since the beginning of the year 51,676 trucks have been sold, of which 22,788 went to veterans.

### Surplus Sales Coordinated

Completion of the inventory of surplus parts at Detroit, totaling \$174,000,000, will result in the release of parts needed by purchasers of surplus vehicles. The War Assets Administration will now attempt to coordinate sales of trucks and parts required to repair them. But this problem will never be completely solved because surplus stocks are limited and manufacturers are no longer making parts for military vehicles.

Parts may be ordered through any War Assets regional office. Fleet operators receive a discount of 45 per cent on parts, assemblies and accessories. Material requiring reconditioning is sold to all buyers at a 10 per cent discount.

A 10 per cent discount on maintenance equipment is also given to fleet operators.

There have been discussions of the practicability of site-sales of surplus parts to replace the present method of surplus sales. This would foul up the works, since there would be no guarantee that those needing the parts would get them.

### Transport Expert Due

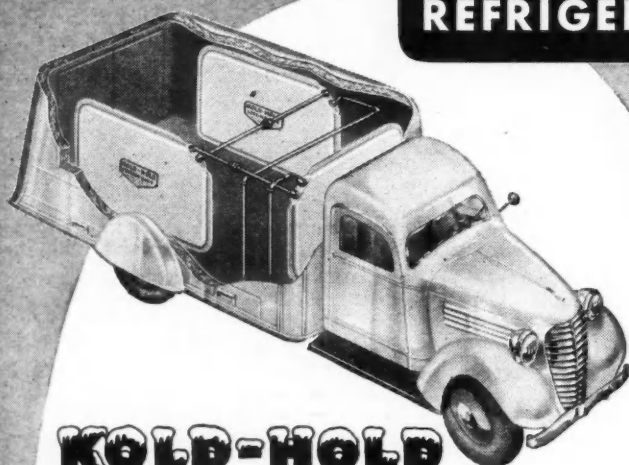
Appointment of a transportation expert, probably from industry, to head up the investigation of the transportation system being conducted by the House Interstate and Foreign Commerce Committee is expected this month. The appointment was to have been made before Chairman Lea left for California last month. It will be made shortly after he returns.

The Committee staff is still working on the replies to the questionnaires sent out months ago. Only 650 have been returned out of the many thousands that were distributed. Early next year the Committee expects to have the replies printed in booklet form and ready for distribution.

### Roberts Joins CPA

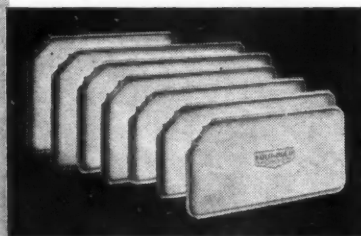
Jo Roberts, after 4½ months rest from 4½ years labor with OPA's Automotive Price Branch, has joined the CPA Automotive Branch. He will replace Ray Fussell as deputy director when Ray leaves for Paris around July 1 to establish his own business.

## PROTECT YOUR MERCHANDISE WITH PRACTICAL REFRIGERATION



**KOLD-HOLD**

Preserve the true flavor and high quality of your product by delivering frosted foods and other perishable items as fresh and attractive as when packaged. KOLD-HOLD Streamlined "Hold-Over" truck plates protect your product in transit... enable you to make more deliveries with less waste and spoilage... keep the interior of your truck dry and odorless.



These plates are engineered and constructed to give complete satisfaction and efficient service... guaranteed ten years. Free estimate of your requirements upon request.

### KOLD-HOLD MANUFACTURING CO.

620 N. Grand Avenue  
LANSING 4, MICHIGAN

## QUIZ ANSWERS

CCJ Quiz on page 76

1. c. Three-quarters of a second is considered normal reaction time for a fairly alert driver under ordinary circumstances. This is the length of time from the instant the necessity for performing an act arises until the instant the driver's reaction takes effect.

2. b. It has been proved that even a single drink of beer or wine will retard reaction time for 3 to 4 hr.

3. b. Reaction is quickest at the age of 23, according to tests made on an apparatus for determining braking reaction invented by Prof. H. R. DeSilva of Massachusetts State College. Two thousand tests showed the average reaction time at 15 years to be 43.7 hundredths of a second. This decreased gradually until at age 23 it was 41 hundredths of a second. Then it kept increasing until it reached 47 hundredths of a second at age 65. (This includes only the muscular reaction time and does not allow for mental reaction time in which the driver becomes aware of the situation on hand.)

4. d. The "natural" focal distance for the eye keeps increasing as the speed of the vehicle increases. The faster the driving, the farther away the point of concentration. At 45 m.p.h., the normal point of focus is 1270 ft. away, almost a quarter of a mile. At 65 the distance is 2000 ft., almost two-fifths of a mile.

5. a. Men are far more prone to color-blindness than women. About one man in 25 is color-blind, but only one woman in 250.

6. b. Tunnel vision or barrel vision. As the speed of a vehicle increases, the vision of even normal eyes narrows greatly on both sides. Objects at the sides are noted in mass but not in detail. At 60 m.p.h. the angle of vision is less than half the angle at 20 m.p.h.

7. b. This sight out of the side of the eye is called peripheral vision. It has definitely been established in laboratory tests that colors do not register equally well in peripheral vision. The two colors least seen are green and boxcar red. This may be one of the reasons for the many accidents involving trains. The red of the cars against a background of

green is often missed entirely in the peripheral vision of the driver's eye. On this subject it is interesting to note that more vehicles are driven into the side of trains than are struck by trains.

8. b. The eating of carrots would help combat his "night blindness." So would any other food with vitamin A, such as butter or yellow or green vegetables. Airplane pilots who went on night bombing missions were given extra rich vitamin A diets.

9. d. He sees absolutely nothing at all. In order to see anything, the eye must be in a fixed position with relation to the object. The eye does not move evenly. It always goes in a series of jumps. When the eyes and head are moved, the eyes see nothing during the movement.

10. a. Your answer should be "yes." Stereoscopic vision means the ability to judge distance. All normal persons have it. A person lacking stereoscopic vision would be a very poor driver.



*since they put on  
Johnson Carbureters*



MANUFACTURED BY  
MARVEL-SCHEBLER CARBURETER DIV.  
BORG-WARNER CORP.  
FLINT 2, MICHIGAN

FOR TRUCK AND CAR REPLACEMENTS

**MARVEL-SCHEBLER**

*Carbureters*



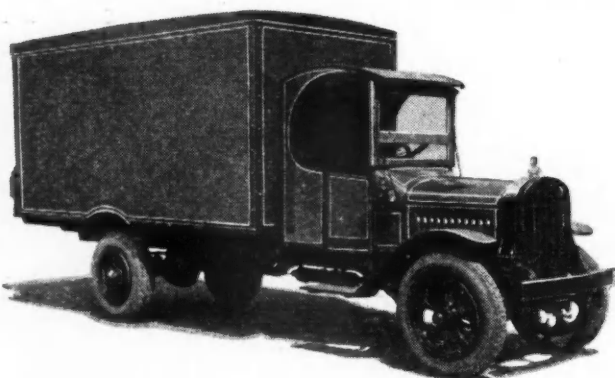
# Half a Century of Truck Progress... A PICTURE HISTORY



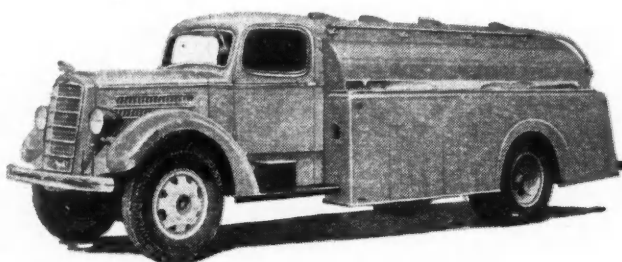
**1906** The first Mack commercial gasoline vehicle was delivered in **1900**. It operated as a bus and later as a truck for 17 years. By 1906, the automotive industry's tenth birthday, Mack trucks had many advanced features, including the "high cab" (above), granddaddy of today's cab-over-engine design.



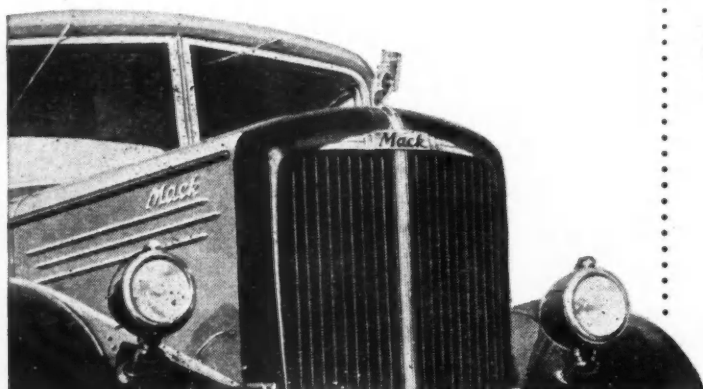
**1916** Ten years later came the famous AC "bulldog" model which made the phrase "built like a Mack truck" a popular synonym for rugged strength. You can still see many of these trucks grinding along through city streets, steadfastly making money for their owners and looking quite at home in modern traffic.



**1926** More powerful engines were being used, and by 1926 pneumatic tires were fast displacing solids and making possible greater road speeds. These progressive trends, plus certain exclusive refinements of Mack engineering, were embodied in the Mack AB.



**1936** An important milestone in truck history was the introduction, in 1936, of the now widely-used Mack EH—a model which surpassed anything previously attained in truck performance.



**1946** Today, with World War II experience crowning its 46 years of production, Mack again takes the lead in building the world's hardest-working trucks... trucks which set industry standards for stamina, performance, economy and long life.

*The Automotive Industry's  
50th Anniversary is Mack's 46th*

## Mack

**TRUCKS  
FOR EVERY PURPOSE**



Mack Trucks, Inc., Empire State Bldg., New York 1, N. Y.  
... Factories at Allentown, Pa. ... Plainfield, N. J. ... New Brunswick, N. J. ... Long Island City, N. Y. ... Factory branches and dealers in all principal cities for service and parts.

**PERFORMANCE COUNTS!**

# TRUCK SPECIFICATIONS TABLE

## OF 1946 PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY  
**COMMERCIAL CAR JOURNAL**

### KEY TO DEFINITIONS, REFERENCES AND ABBREVIATIONS

#### DEFINITIONS

##### MAKE AND MODEL

Only Domestic Truck Models are listed.

##### OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

##### CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

##### RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their recommended Gross Vehicle Weights for Normal Operating Conditions.

##### MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rear axles are underfoot; exceptions noted.

##### MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the shortest standard wheelbase on which the Chassis List Price is based.

##### MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

##### MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

##### GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

##### TRACTORS

Unless given the designation (N)—meaning not available as tractor—oil standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

#### KEY TO REFERENCES

(a)—Available with Eaton Two-Speed Axle designated KS Models.  
(b)—Current models will include, at additional cost, certain items not considered standard equipment. These items are included in the specifications and are listed below—Model J K-3, K-4, K-5, K-6, K-7, K-8, K-9, K-10, K-11, K-12, K-13, K-14, K-15, K-16, K-17, K-18, K-19, K-20, K-21, K-22, K-23, K-24, K-25, K-26, K-27, K-28, K-29, K-30, K-31, K-32, K-33, K-34, K-35, K-36, K-37, K-38, K-39, K-40, K-41, K-42, K-43, K-44, K-45, K-46, K-47, K-48, K-49, K-50, K-51, K-52, K-53, K-54, K-55, K-56, K-57, K-58, K-59, K-60, K-61, K-62, K-63, K-64, K-65, K-66, K-67, K-68, K-69, K-70, K-71, K-72, K-73, K-74, K-75, K-76, K-77, K-78, K-79, K-80, K-81, K-82, K-83, K-84, K-85, K-86, K-87, K-88, K-89, K-90, K-91, K-92, K-93, K-94, K-95, K-96, K-97, K-98, K-99, K-100, K-101, K-102, K-103, K-104, K-105, K-106, K-107, K-108, K-109, K-110, K-111, K-112, K-113, K-114, K-115, K-116, K-117, K-118, K-119, K-120, K-121, K-122, K-123, K-124, K-125, K-126, K-127, K-128, K-129, K-130, K-131, K-132, K-133, K-134, K-135, K-136, K-137, K-138, K-139, K-140, K-141, K-142, K-143, K-144, K-145, K-146, K-147, K-148, K-149, K-150, K-151, K-152, K-153, K-154, K-155, K-156, K-157, K-158, K-159, K-160, K-161, K-162, K-163, K-164, K-165, K-166, K-167, K-168, K-169, K-170, K-171, K-172, K-173, K-174, K-175, K-176, K-177, K-178, K-179, K-180, K-181, K-182, K-183, K-184, K-185, K-186, K-187, K-188, K-189, K-190, K-191, K-192, K-193, K-194, K-195, K-196, K-197, K-198, K-199, K-200, K-201, K-202, K-203, K-204, K-205, K-206, K-207, K-208, K-209, K-210, K-211, K-212, K-213, K-214, K-215, K-216, K-217, K-218, K-219, K-220, K-221, K-222, K-223, K-224, K-225, K-226, K-227, K-228, K-229, K-230, K-231, K-232, K-233, K-234, K-235, K-236, K-237, K-238, K-239, K-240, K-241, K-242, K-243, K-244, K-245, K-246, K-247, K-248, K-249, K-250, K-251, K-252, K-253, K-254, K-255, K-256, K-257, K-258, K-259, K-260, K-261, K-262, K-263, K-264, K-265, K-266, K-267, K-268, K-269, K-270, K-271, K-272, K-273, K-274, K-275, K-276, K-277, K-278, K-279, K-280, K-281, K-282, K-283, K-284, K-285, K-286, K-287, K-288, K-289, K-290, K-291, K-292, 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☐ Chevrolet own rear axle (6.03-7.99:1) available at extra cost on Models P4-PK-PL. Chevrolet own 2-speed rear axle (6.03-7.99:1) available at extra cost on Models PY-PW-SR-PP-PR-PS-PV-PW. Max. gross vehicle weight can only be obtained by adding regular productive options (at extra cost).



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Keep Your Savings Bonds!  
Get \$4 for \$3!

## SEALED POWER PISTON RINGS

BEST IN NEW TRUCKS! ★ BEST IN OLD TRUCKS!

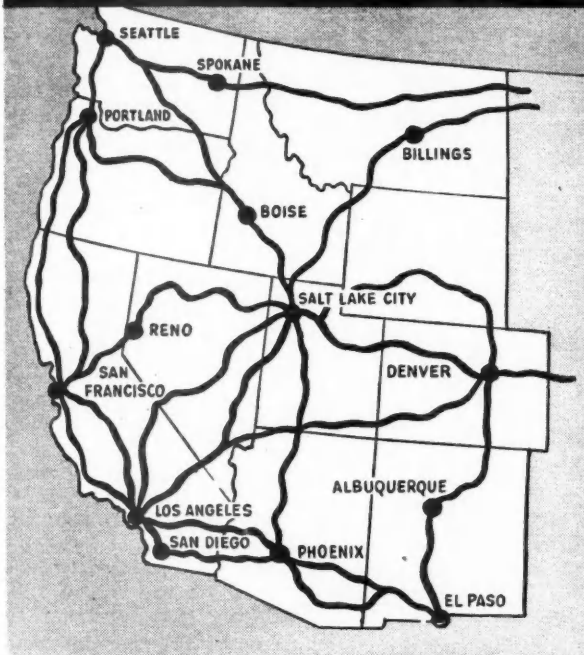
Line Number	MAKE AND MODEL	WHEEL-BASE		Gross Vehicle Weight for Normal Service	TIRE SIZES		ENGINE DETAILS						TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES		FRAME																
		Minimum Standard	Maximum Standard		Standard	D-dual rear S-single rear (Duals unless noted)	Chassis Weight (See definition)	Maximum Authorized Tire Size	Model	No. of Cylinders	Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at 1500 R.P.M.	Number, Diameter and Length of Beaters		Governor Standard	Model and Make		Gear and Type	Drive & Torque	Gear Ratio	Range in High	Make and Model	Location	Type	C-A Dimension (Min. Ltd. V. 9.)	Side Rail Dimensions	Type						
1	Dodge, Co. d.	WGA-33	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102			
2	WGA-34	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
3	WGA-35	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
4	WGA-36	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
5	WGA-37	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
6	WGA-38	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
7	WGA-39	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
8	WGA-40	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
9	WGA-41	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
10	WGA-42	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
11	WGA-43	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
12	WGA-44	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
13	WGA-45	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
14	WGA-46	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
15	WGA-47	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
16	WGA-48	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
17	WGA-49	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
18	WGA-50	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
19	WGA-51	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
20	WGA-52	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
21	WGA-53	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
22	WGA-54	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
23	WGA-55	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
24	WGA-56	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
25	WGA-57	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
26	WGA-58	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
27	WGA-59	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
28	WGA-60	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
29	WGA-61	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
30	WGA-62	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
31	WGA-63	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5	236.6	6.12	204.1	141-3000	4	Y	Est	Sfd	H Dual Rge. Owa	11-7.16	Owa	391	609	C	391	609	C	102	102	102	102	102	102	102	102	102
32	WGA-64	178	220	6.00-20	6.00-20	6.00-20	10000	10000	6	3.5																										



# GRAVITY SUSPENSION TANDEM

An exclusive **FRUEHAUF** Underconstruction!

**"1,000,000 MILES" PROVING GROUND  
WHERE THE ADVANTAGES OF THIS NEW  
TANDEM DESIGN WERE ESTABLISHED!**



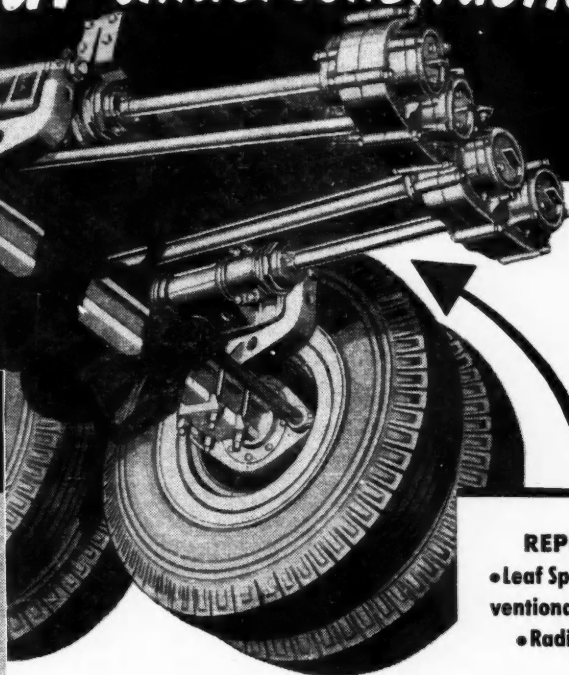
Road-tested for 2 years over rugged mountainous Western highways, under all road conditions—a total of more than 1,000,000 miles! Maintenance and tire costs are cut tremendously with Gravity Suspension Tandem.

Send for the Tandem Booklet "Working Model"  
Explanation of the Principle of this New Design

World's Largest Builders of Truck-Trailers

**FRUEHAUF TRAILER COMPANY • DETROIT 32**

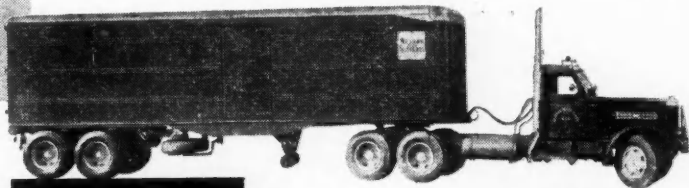
8 Factories—60 Factory Service Branches



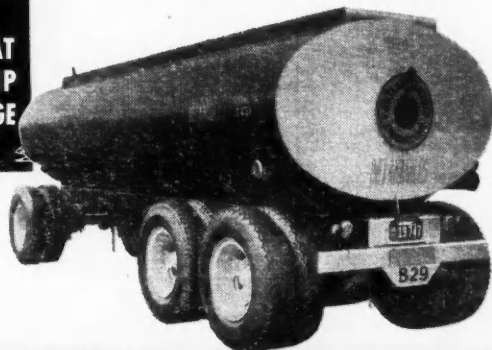
**REPLACES**  
• Leaf Springs • Con-  
ventional Hangers  
• Radius Rods

## This Tandem-Axle Unit Provides—

- ① **PERFECT SPRINGING**—"Feather-soft" when light—with spring action exactly proportional to the load.
- ② **BRAKING SMOOTH & SURE**—no chatter—no wheel hop—Torsion Bar Springs eliminate this.
- ③ **LONGER TIRE LIFE**—you forget about destructive tire scuffing. Axles "follow the curves" automatically in all normal in-and-out on-the-highway travel.
- ④ **GREATER SAFETY**—hugs the road on turns. Axles ride road contours independently, to provide "sure-footedness".
- ⑤ **LOWER MAINTENANCE**—all bearings are lubricated for life. Radius rods, leaf springs, conventional hangers are discarded.



**2 OF THE  
TEST UNITS THAT  
HAVE ROLLED UP  
NEW TIRE-MILEAGE  
RECORDS!**



# FRUEHAUF



# TRAILERS

"ENGINEERED

TRANSPORTATION"



Line Number	MAKE AND MODEL	WHEEL-BASE		Chassis List Price	TIRE SIZES		Gross Vehicle Weight	ENGINE DETAILS		TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES				C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type					
		Minimum Standard	Maximum Standard		Standard Front and S-Single rear	Dual rear S-Single rear		No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Main Bearings and Length	Governor Standard		Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range to High				SERVICE				
																						Make Location	Lining Area	Drum Area	Drum Material	Hand Location
1	Ford	4720	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
2	Chrysler	4740	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
3	Chrysler	4740	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
4	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
5	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
6	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
7	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
8	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
9	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
10	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
11	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
12	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
13	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
14	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
15	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
16	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
17	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
18	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
19	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
20	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
21	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
22	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
23	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
24	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
25	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
26	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
27	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
28	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
29	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
30	Pontiac	4800	114	114	4700	6.50/16	6.50/16	Own 590-V8	8-3	239.6	7	180	100-3800	3	Own 21C	SE	H	3.54	Own 21C	BAIH	162	264	Co	21M	5.92x15x2	CT
31	Hudson	4910	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
32	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
33	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
34	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
35	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
36	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
37	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
38	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
39	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
40	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
41	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4000	3-4	N Owa	3 Owa	SE	H	4.55	Own 58	BAIH	141	242	C	21	7.5x15x2	B
42	Intern'l	600	128	128	4910	6.50/16-6	6.50/16-6	Own 58	6-3x5	212.6	5.168	102-4														

BY ANY COMPARISON...

*SOUTH WIND'S THE BUY!*

**NO OTHER TRUCK HEATER GIVES YOU...**

**MORE HEAT** ... up to 20,000 BTU'S per hour ... even when engine is cold.

**REGULATED HEAT** ... in any amount desired down to less than 20% of rated output.

**AUTOMATIC CONTROL** ... maintains temperature in the truck at the desired level without attention from the driver.

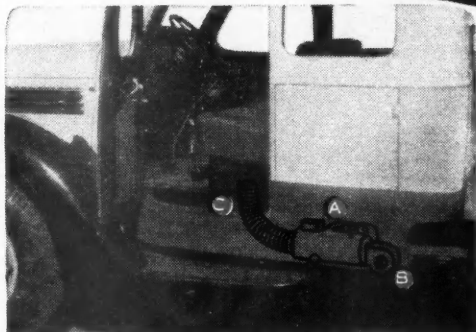
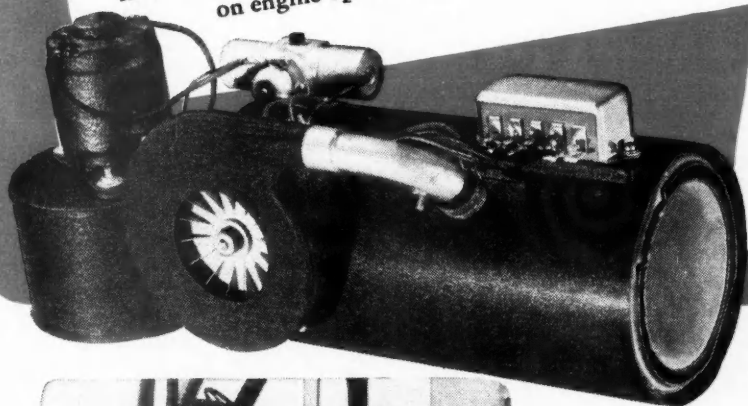
**BETTER VENTILATION** ... more than 100 cubic feet per minute ... keeps drivers alert, and windows clear of fog and frost.

**INSTANT USE** the year 'round. Maximum output within one minute after heater is turned on ... not dependent on engine operation.



**YOU BENEFIT 4 WAYS:**

1. You Protect the Health, Increase the Safety and Efficiency of Drivers.
2. You Reduce Accidents.
3. You Get Quick Starts in Cold Weather.
4. You Protect Perishable Goods in Transit.



**A Typical South Wind Deluxe Installation**

This is just one of many ways the unit can be installed. A, New South Wind Deluxe heating unit. B, Blower to force in fresh air. C, Hot air duct to driver's compartment.



This new South Wind Deluxe Truck Heater is time-tested and road-proved. It employs the famous "sealed flame" principle of creating its own heat—contains flame and gases within a hermetic chamber welded out of the finest stainless steel.

The unit is completely flexible in its application. So, talk over your truck heating problem with our engineers. No obligation. South Wind Division, Stewart-Warner Corporation, Dept. 930, Indianapolis 7, Indiana.

*South Wind*  
REG. U. S. PAT. OFF.  
**DELUXE TRUCK HEATER**



▲ Includes cab.



## WHAT'S THE LIMIT?

The Empire State Building soaring almost a quarter mile into the New York sky-line, is the tallest building in the world. Can man build higher? One famous architect says, "Yes—twice as high!" What's the limit?

## IS *Porous Chrome*\* THE ENGINE-LIFE PISTON RING?

We don't know yet, but 7,000,000 miles of grueling road tests indicate that possibility.

Porous Chrome piston ring sets, tested in all types of engine and all types of service, rolled up amazing records. ring life was multiplied four or five times—wear on the block was reduced by half—and because of a controlled honing action in the first hour's operation, the entire set of rings seated almost immediately, practically eliminating break-in wear.

Your American Hammered jobber is ready with Porous Chrome sets for bus and truck engines now. Wise fleet operators will call him without delay.



ANOTHER  
**American  
Hammered**  
RING LEADER

Chrome piston rings are an original American Hammered development

\* Van der Horst process

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

# American Hammered Piston Rings

A KOPPERS PRODUCT

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES		ENGINE DETAILS						TRANS-MISSION		REAR AXLE		FRONT AXLE	BRAKES				FRAME				
			Minimum Standard	Maximum Standard			D-dual rear S-single rear	Standard Front and Rear	Maximum Authorized Tire Size (Dually un-less noted)	Model and Stroke	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Main Bearings Number, Diameter and Length	Governor Standard	Make and Model		Gear and Type	Drive & Torque	Gear Ratio High	Make and Model		SERVICE			
																									Make Location	Operating	Lining	Drum Area
C-A Dimension (Min. Std. W. B.)																												
Type																												
Side Rail Dimensions																												

1	Ken- (D) 523-AR	193	241	41000	14600	10,000/20	11,000/22	Cum HB6	6-3 1/2 x 6	743 1/2	565	200-2100	2100	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	924	1248	TD 102	9 1/2 x 3 1/2 x 4 1/2	C
2	worth(D) 524-AR	193	241	41000	15100	10,000/20	11,000/22	Cum HB6	6-3 1/2 x 6	743 1/2	565	200-2100	2100	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	924	1248	TD 102	9 1/2 x 3 1/2 x 4 1/2	C
3	523-AR	186	234	40000	12500	10,000/20	10,000/22	Bud L0525	6-3 1/2 x 6	525 1/2	355	135-2500	2500	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	924	1248	TD 102	9 1/2 x 3 1/2 x 4 1/2	C
4	523-AR	186	234	40000	12500	10,000/20	10,000/22	Wau L0525	6-3 1/2 x 6	525 1/2	355	135-2500	2500	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	924	1248	TD 102	9 1/2 x 3 1/2 x 4 1/2	C
5	523-AR	186	234	40000	12500	10,000/20	10,000/22	Cum HB6	6-3 1/2 x 6	743 1/2	565	200-2100	2100	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	924	1248	TD 102	9 1/2 x 3 1/2 x 4 1/2	C
6	(D) 523-AR	255	255	44500	20700	13,000/24	13,000/24	Cum HB6	6-3 1/2 x 6	743 1/2	565	200-2100	2100	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W441A	1109	1192	TD 108	9 1/2 x 3 1/2 x 4 1/2	ABC
7	Marmon-Herr	2790	156	22500	6673	7,500/20	7,500/20	Ford	8-3 1/2 x 6	289 1/2	176	100-3500	3500	N Ford	4T SW 3012PA	WF R	SW 3012PA	36000	M	503	503	TD 103	7 1/2 x 3 1/2 x 4 1/2	C
8	(C) ... CMMT-6	2822	260	27000	6717	7,500/20	7,500/20	Ford	6-4 1/2 x 6	529 1/2	330	137-2200	2200	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	M	503	503	TD 103	7 1/2 x 3 1/2 x 4 1/2	C
9	(C) ... NE-535-6	2822	260	27000	14900	11,000/20	11,000/20	Her RXC	6-4 1/2 x 6	529 1/2	330	137-2200	2200	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W8. A	1092	1608	TD 103	10 1/2 x 3 1/2 x 4 1/2	C
10	(C) ... NE-535-6	2822	260	27000	14900	11,000/20	11,000/20	Her RXC	6-4 1/2 x 6	529 1/2	330	137-2200	2200	YBL 7841	4T SW 3012PA	WF R	SW 3012PA	36000	W8. A	1092	1608	TD 103	10 1/2 x 3 1/2 x 4 1/2	C
11	Peterbilt(D) 344DT	11415	189	43000	16250	10,000/20	11,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1212	1734	FD 100 1/4	10 1/2 x 3 1/2 x 4 1/2	TL
12	(D) ... 354DT	11870	187	43000	16250	10,000/20	11,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1212	1734	FD 100 1/4	10 1/2 x 3 1/2 x 4 1/2	TL
13	(D) ... 354DT	11915	187	43000	17300	10,000/20	11,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1212	1734	FD 100 1/4	10 1/2 x 3 1/2 x 4 1/2	TL
14	(D) ... 354DT	12575	187	43000	17900	10,000/20	11,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1212	1734	FD 100 1/4	10 1/2 x 3 1/2 x 4 1/2	TL
15	Stirling	185	245	42000	14500	10,000/20	10,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1160	1878	TX 97	9 1/2 x 3 1/2 x 4 1/2	A
16	(D) HWS160H	185	245	42000	14500	10,000/20	10,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1160	1878	TX 97	9 1/2 x 3 1/2 x 4 1/2	A
17	(D) HWS160H	185	245	42000	14500	10,000/20	10,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1160	1878	TX 97	9 1/2 x 3 1/2 x 4 1/2	A
18	(D) HWS160H	185	245	42000	14500	10,000/20	10,000/22	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Spl 7741	12T SW 3042PA	WF L	SW 3042PA	30000W	W61A	1160	1878	TX 97	9 1/2 x 3 1/2 x 4 1/2	A
19	(D) HCS195H	191	207	43000	14000	10,000/20	11,000/22	Wau L40GK	6-4 1/2 x 6	525 1/2	403	137-2250	2250	Y Fu 54623	12T SW 452W	CD R	SW 452W	27454W	W61A	1092	1810	TX 107	9 1/2 x 3 1/2 x 4 1/2	A
20	(D) HCS195H	191	207	43000	14000	10,000/20	11,000/22	Wau L40GK	6-4 1/2 x 6	525 1/2	403	137-2250	2250	Y Fu 54623	12T SW 452W	CD R	SW 452W	27454W	W61A	1092	1810	TX 107	9 1/2 x 3 1/2 x 4 1/2	A
21	(D) HWS235H	195	211	52000	15000	11,000/20	13,000/24	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Fu 48864	12T SW 265W	CD R	SW 265W	27454W	W61A	1170	2010	TX 90	9 1/2 x 3 1/2 x 4 1/2	A
22	(D) HCS235H	195	211	52000	15000	11,000/20	13,000/24	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Fu 48864	12T SW 265W	CD R	SW 265W	27454W	W61A	1170	2010	TX 90	9 1/2 x 3 1/2 x 4 1/2	A
23	(D) HCS297H	178	195	70000	20500	12,000/24	13,000/24	Cum HB600	6-4 1/2 x 6	672 1/2	500	150-1800	1800	Y Fu 48864	12T SW 330W	CD R	SW 330W	27454W	W61A	1280	2046	TX 90	9 1/2 x 3 1/2 x 4 1/2	A
24	Truckell	156	237	26000	45900	7,500/20	8,250/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	4 Ford	SF	4 Ford	3600	F01HV	502	836	TX 82 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
25	(C) ... FX26-2F	156	237	27000	45900	7,500/20	8,250/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	8 Eat 1350	SF	8 Eat 1350	3600	F01HV	502	836	TX 82 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
26	(C) ... FX26-2F	156	237	27000	45900	7,500/20	8,250/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	12 Cia R1300	SF	12 Cia R1300	3600	F01HV	605	1043	TX 82 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
27	(C) ... FX26-2F	135	234	34000	8235	25/20	10,00/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	605	1043	TX 82 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
28	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	8 Ford	SF	8 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
29	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
30	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
31	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
32	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
33	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
34	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
35	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
36	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
37	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
38	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
39	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT
40	(C) ... FX26-2F	144	210	26000	46300	50/20	8,25/20	Ford	8-3 1/2 x 6	239 1/2	180	100-3800	3800	N Ford	16 Ford	SF	16 Ford	3600	F01HV	502	836	TX 63 1/2	7 1/2 x 3 1/2 x 4 1/2	CTT

Additional speeds with auxiliary transmission.

Includes cab.

## ... 1000-VEHICLE FLEET

(CONTINUED FROM PAGE 74)

shop hourly rate of \$2.25 for 1946-47 would result in the equivalent of \$1.71 per hour, a reduction of 54 cents below the '46-'47 rate but, when 17 cents for increased cost due to buildings, etc., is allowed, the net is 44 cents or 27 cents per hour below the present rate of \$2.25. This represents a substantial profit and enough to own and maintain two additional sets of shop buildings and their equipment.

The service and truck shed building will need to be treated differently.

Department engineers and architects in this case estimated as follows:

For the truck shed portion. \$207,000

For the service & supply

portion ..... 205,000

It is estimated by the Automotive and Construction Equipment Section that the monetary cost of letting cars and trucks stand outside in the weather (present practice) against housing them as in the truck shed, is approximately \$80 per unit more per year on the average, not including indeterminate items such as extra depreciation of tires, sun-baked windshields and the like.

A common figure, which includes depreciation, amortization, and maintenance of buildings, used by the department is 5 per cent (of the original cost) per annum which allows for 40 years' building life.

Five per cent of \$207,000 is \$10,350; annual cost of owning and maintaining the new truck shed.

\$80 per unit times 125 units is \$10,000 annual savings by housing the cars and trucks. Difference, \$35



# This **DOUBLE-DUTY OIL** will doubly safeguard your new equipment!

**Q**UAKER State HD Oil not only lubricates better and longer, but it actually *cleans* engines.

Yes, *cleans* them! — because it contains a special detergent that keeps engine working surfaces free from troublesome sludge, dirt, carbon, gum, and sticky “varnish.”

This famous double-duty oil did much to help keep your old equipment in good operating condition

through four gruelling war-time years. Use it to keep your new equipment “new” — keep down running costs—keep it on the job! Let Quaker State HD Oil doubly safeguard your new buses, trucks and tractors. Quaker State Oil Refining Corporation, Oil City, Pennsylvania.

Quaker State HD Oil for your trucks, buses, and tractors  
Quaker State Motor Oil for your passenger cars

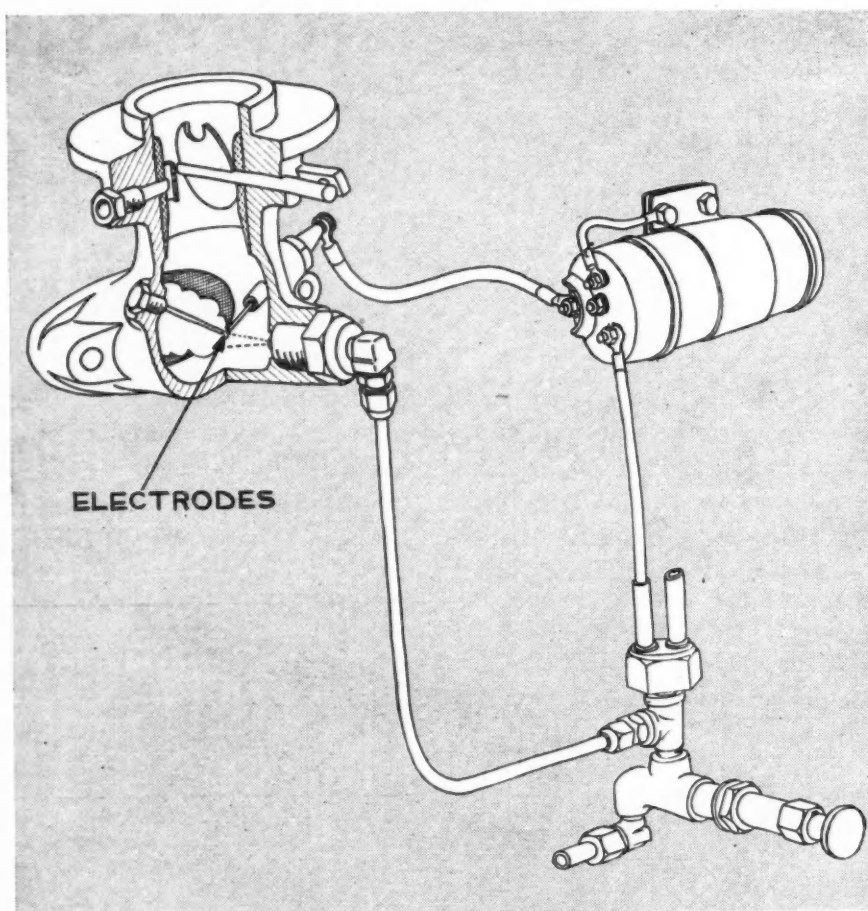
**QUAKER STATE  
HD OIL**

AND QUAKER STATE SUPERFINE LUBRICANTS



QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA





## Hercules Diesels Feature New Air Intake Heater

**A nozzle and two electrodes mounted on  
cylinder head take place of glow plug.**

**Fuel is ignited under pressure by spark**

**A** NEW development in the Hercules diesel engine is the arrangement for heating the induction system under low temperature operating conditions. Instead of the glow plugs formerly used, Hercules recommends the installation of

a fuel oil burning air intake heater when operating temperature is below 50 deg. Fahr. This will facilitate starting and eliminate excessive use of the starting motor and the consequent drain on the batteries.

The air intake heater assembly

contains a nozzle and two electrodes and is mounted on the air intake elbow which is attached to the cylinder head. In conjunction with this is a manually operated fuel oil pump, with a pressure switch and vibrator coil, mounted on the dash or instrument panel. This unit should not require attention by the operator except an occasional cleaning of the fuel nozzle and checking the electrode gap which has a clearance of 3/32 in. If the electrodes become grounded, in very humid climates, due to a collection of moisture, it is necessary to dry the electrodes.

### Two Phases of Operation

**T**HE functioning of the unit consists of two phases—on starting, and after the engine starts. On starting, the hand fuel pump is operated at the same time the starting button is depressed. The hand pump draws fuel from the tank and conducts it to the heater nozzle through a small tube. The small orifice in the nozzle causes a restriction in the fuel line, developing pressure which operates the pressure switch. This, in turn, closes the electrical circuit and permits current to flow to the vibrator coil, thus producing the spark for igniting the fuel oil spray.

When the engine starts, the operation of the fuel oil pump and starter button are discontinued. The pressure in the fuel line then drops and the pressure switch breaks contact. Normally during this period not all of the oxygen in the air is consumed; hence the fuel previously injected into the cylinder will ignite. If the engine still does not start, discontinue operating the hand fuel pump and allow the heat absorbed by the manifold to warm the air passing to the cylinder. (The above condition is similar to over-choking a gasoline engine.) Should the firing of the cylinders slow down while pumping—stop pumping. And if the engine slows down after pumping is stopped, give the pump another short stroke. **NOTE:** Operate the priming pump only when the engine is being cranked.

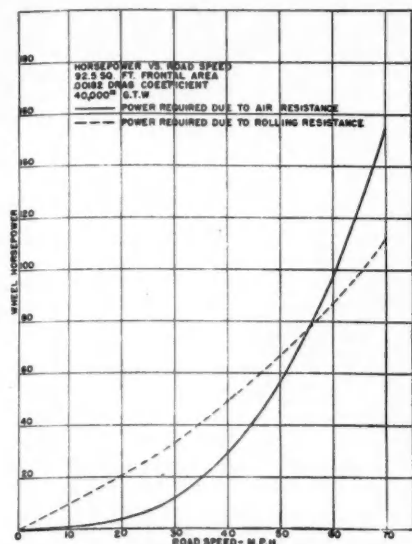


Fig. 1. Above 40 m.p.h., air resistance hp. requirement jumps. At 50 miles, 46% is required to overcome air

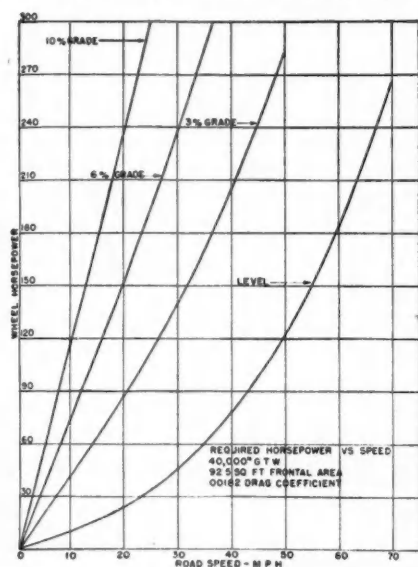
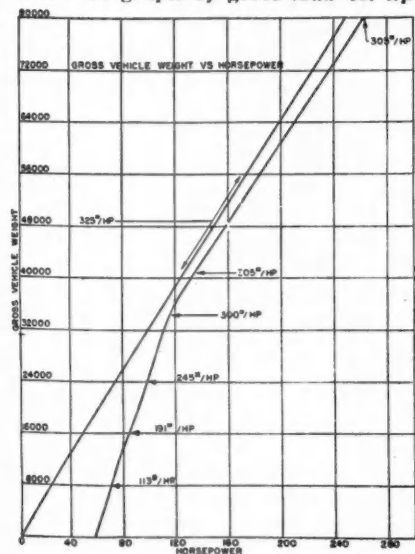


Fig. 2. Total hp. requirements for 40,000-lb. truck on levels and grades

Fig. 3. Previous highest hp. requirements on graph of gross load vs. hp.



# Power Requirements in Trucks of the Future

To meet demands for more power, engines

will have greater output and speed with

less weight, improved gearbox efficiency

by F. R. NAIL

Assistant to Chief Engineer, Mack Manufacturing Corp.



F. R. Nail

I don't know of any firm rule that will establish general power requirements. In highway transport, the demand for power will become increasingly greater in keeping with the demands of business transactions in general.

As far as public opinion is concerned, it is a two-edged sword. The average passenger car driver is prone to damn a truck if it forces him to reduce his speed on the highway due to his inability to pass. He will be even more distressed if he is forced to follow the truck for any distance at a decidedly reduced speed. This distress easily becomes of such magnitude that his legislator hears about it.

**H**OW much power is needed for a given truck is a question which will get as many answers as the number of times it is asked.

You will recall that shortly before the war there was considerable agitation for minimum performance laws for trucks and the Public Roads Administration embarked on an extensive research and test program to determine what these minimums should be. If they had found the answer, I wouldn't be speculating about it now.

On the other hand, if this same driver is cruising along the highway, at what he has determined is the proper speed, and a truck breezes past him, he is ready to put up a scrap about that. Particularly, if the truck speed is sufficiently faster than his to create wind pressure that will momentarily cause greater steering effort on his part. Under that condition, he is likely to tell his congressman that the truck is a menace to highway safety and their speeds should be held down by law. In some states they are below those of passenger cars right now.

From the angle of public opinion,  
(TURN TO NEXT PAGE, PLEASE)

## POWER REQUIREMENTS

(CONTINUED FROM PAGE 101)

then, the power should be sufficient to maintain a road speed about equal to that allowed the passenger car. This varies from 35 m.p.h. to 70 m.p.h. at present. The majority of states, I believe, are about 50 m.p.h.

Utility demands that trucks be powered to carry their loads through several states. That would mean they

should all be capable of sustained speeds of 70 m.p.h. Efficiency, however, probably won't permit such speed.

### Overcoming Rolling Resistance

LET'S take a look at hp. requirements for a truck 12½ ft. high and 8 ft. wide to overcome air resistance and hp. requirements to overcome rolling resistance of 40,000 lb. train, which is the most popular size highway vehicle. Fig. 1 shows that

above 40 m.p.h., the air resistance hp. requirement begins to skyrocket and at 50 m.p.h. 46 per cent of the total required hp. is to overcome air resistance. We are approaching the point of diminishing returns where the extra road speed does not yield enough saving in trip time to compensate for the extra fuel consumed.

Should we say then that trucks should be powered for pulling their load at 50 m.p.h.? This seems to be a reasonable speed that might meet with the passenger car driver's approval. Unfortunately, that is not the whole answer.

### Grade Requirements

REMEMBERING that this same passenger car driver is also annoyed when he is held up by a slow moving truck on a grade, other power requirements must be checked as well. Here is another curve, Fig. 2, showing total hp. requirements for a 40,000 lb. vehicle, of the same frontal area as we had before, when traveling on the level, on a 3 per cent grade, a 6 per cent grade, and a 10 per cent grade. These particular grades were picked as being considered those with which we are most commonly concerned. A 3 per cent grade is a common maximum on most any highway; the 6 per cent is usually the steepest grade encountered; the 10 per cent is the uncommon variety and the one which is most likely to incur our passenger car driver's wrath.

Using the power requirement for 50 m.p.h. on the level as a criterion, we see that we could go 26½ m.p.h. on a 3 per cent grade, 16½ m.p.h. (TURN TO PAGE 105, PLEASE)

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REGISTERED U.S. PAT. OFF.

# Hi-RATE BATTERY CHARGER

MODEL 170

- The Marquette Hi-Rate Battery Charger is not only a High Rate Charger, but a HIGH SPEED testing system. In 15 seconds, it tells the exact charging time. The accurate meter proves whether the battery is worn-out or sulphated. Enables you to keep all batteries in top flight condition.

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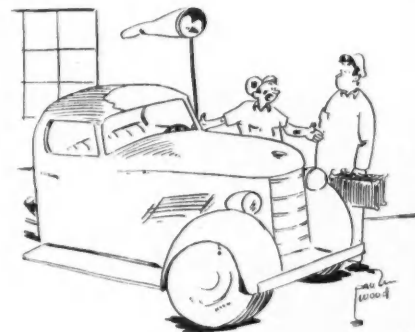
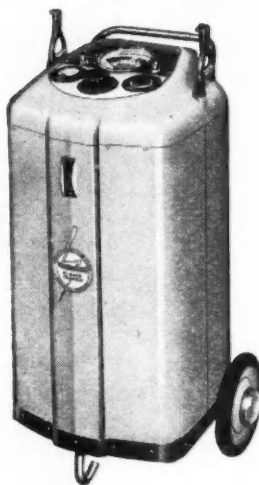
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*Automotive*  
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- 15 SECOND TEST
- TESTS BEFORE CHARGE



"The way you drive—I thought it would be handy for you to take off in the wind."



## POWER REQUIREMENTS

(CONTINUED FROM PAGE 102)

on a 6 per cent grade, and 10½ m.p.h. on a 10 per cent grade. I believe you will agree that these speeds are too slow. If powered to travel 70 m.p.h. on the level, the corresponding grade speeds are 48 m.p.h. for 3 per cent grade, 33 m.p.h. for 6 per cent grade, and 22½ m.p.h. for 10 per cent. Now I think you will agree that these speeds are pretty good. Considerably above what is normally encountered today. Whether or not such advance performance is needed is a question which I'm not prepared to answer. It is, as I said earlier, a matter of opinion and I prefer, at this time, to keep my opinion to myself.

It will, of course, be answered by the economics involved; that is, how much money can be invested in the first cost of the vehicle, plus the amount of tare weight that can be tolerated, as opposed to the gain that can be derived in revenue as a result of reduced haul time. This, undoubtedly, will require tailoring a truck to the particular operation, since there would be little gain in cutting two

hours running time from a trip that required 10 hours unless the operation were one based on 24-hour duty.

Assuming for the moment that we have arrived at a performance requirement of 50 m.p.h. on a level road for 40,000 lb. gross vehicle weight and reading from the curve the power requirement of 123 hp., we might say that 325 lb./hp. could be taken as a design factor of all highway vehicles. But this is not the case, if comparable performance is desired. That same old "bogie" of

air resistance again upsets the apple cart. Required hp. can be expressed as equal to tractive effort in pounds times speed in m.p.h. divided by 375. The tractive effort factor is composed of force required to overcome rolling resistance plus force required to overcome air resistance. In light gross weight vehicles, air resistance is a large percentage of the total. This percentage decreases as the gross load goes up. This, of course, presupposes that all vehicles have the

(TURN TO NEXT PAGE, PLEASE)



HE IS PERHAPS THE MOST FAMOUS OF ALL WORLD WAR II WINNERS OF THE CONGRESSIONAL MEDAL OF HONOR. HE SINGLE-HANDEDLY KILLED 40 GERMANS IN 20 MINUTES. HIS CHOICE FOR A POSTWAR CAREER HAS BEEN THE OPERATION OF A SERVICE STATION FOR CARS AND TRUCKS HE IS...

- ☐ CHARLES E KELLEY
- ☐ CLARENCE E COGGINS
- ☐ FORREST L VOSLER
- ☐ ARNOLD L BJORKLUND

(Answer on p. 106)

## HOW TO REPAIR CRACKED BLOCKS AND HEADS



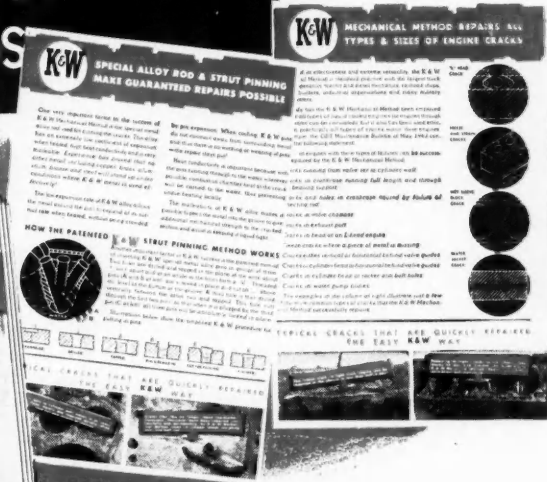
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## POWER REQUIREMENTS

(CONTINUED FROM PAGE 105)

same frontal area, a presumption which is very nearly right since density of various loads require bodies of the same dimensions over a wide range of gross loads.

### Meeting Highest Demand

IF WE select from the four curves, the desired speed for each road condition (in this case I have selected

50 m.p.h. on level, 28 m.p.h. on 3 per cent grade, 17½ m.p.h. on 6 per cent grade and 11 m.p.h. on 10 per cent grade) our hp. for the vehicle must equal that of the highest single demand. If these same curves are plotted for various gross loads and the highest requirement is taken from each and plotted on another graph of gross load vs. hp., the curve, in comparison to the straight line function, will look like that shown in Fig. 3.

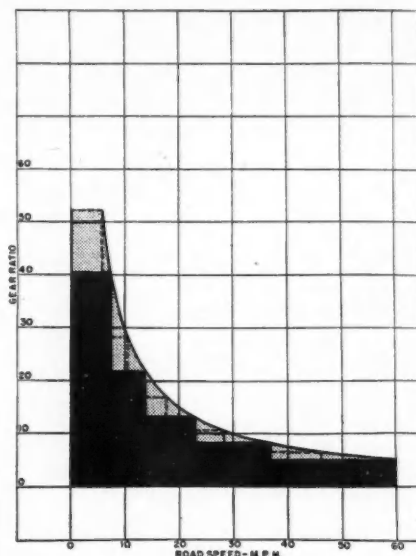
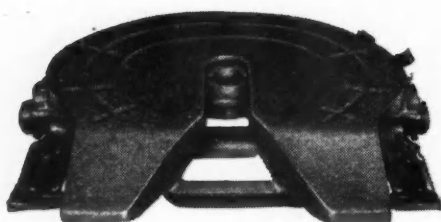


Fig. 4. Proportion of usable and available hp. for a given combination

## You Get *Safety* You Can See IN THIS 5th WHEEL THAT LOCKS 3 WAYS



What makes a 5th wheel safe? Many things, but you can't have *safety* without *sure protection* against accidental uncoupling. You get *both* in the ASF Safety 5th Wheel—a product of more than forty years of railroad coupler experience.

### HERE'S THE PATENTED 3-WAY LOCK THAT NEVER FAILS



All locking parts are located beneath the rugged cast-steel plate. Jaws can always be kept tight by shimming, without removing wheel.

**SIMPLE AND SURE.** Variations of shading show the three moving elements of the Safety 5th Wheel coupler, in *locked* position. (1) Action of gravity, and a coil spring booster, hold *two* locking arms on a downward slope against the rear king-pin jaw. (2) Near end of counterweighted cam is seated in pocket to eliminate any chance of bounce or *creep*. (3) Safety latch at operating lever prevents cam movement. Tractor pull is directly from the plate through locking arms—not through the hinge pins. Find out how *Safety 5th Wheels* can save you money. Write, today! American Steel Foundries, 400 N. Michigan Ave., Chicago 11, Ill.

# A·S·F *Safety* 5th WHEEL

You are naturally interested in what design features are going to be in new engines to deliver these power requirements. Sticking to the prerequisites, I can say that the efficiency to be demanded of the new trucks will require, and get, engines of greater output for less weight and that they will run faster. They must run faster to reduce their own weight unit per hp. as well as keep their torque down within reasonable limits to permit reductions in weight of the gear set and other power transmission units.

How this will be accomplished is no particular secret. Much has been learned, during the war years, to improve materials that will allow increased speeds of the present day automotive engine. Much has been learned, too, in refinements of manifold and combustion chamber design which will give us higher thermal efficiencies. Improved fuel will allow us to increase compression ratios without detrimental effect from

### ● WHO IS IT?

ANSWER... (To Question on P. 105)

"Commando" Kelly, winner of the Congressional Medal of Honor and the Silver Star, is today operator of a Sunoco service station on the north side of Pittsburgh. Kelly has written a book, "One Man's War," and a movie is being made of his life.

(Another Cartoon Quiz is on P. 108)

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HEAVY DUTY SERVICE



- **RUGGED INTERNAL CONSTRUCTION** insures long life in heavy duty service, with extra metal added for correct heat transfer and extra strength.

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- **CAM GRINDING** assures correct shape and increased bearing area at operating temperature.

- **T-SLOT DESIGN** assures lower and more uniform temperature throughout piston.



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## SEALED POWER CORPORATION

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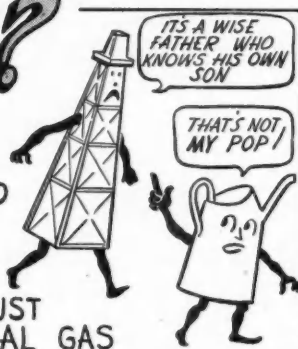
# WHAT'S NEW?

A NEW ENGINE LUBRICANT  
CALLED "UCON" CONTAINS NO  
PETROLEUM OILS.  
IT IS MADE FROM.....

☐ SOY BEANS  
☐ CORNSTALKS

☐ SAWDUST  
☐ NATURAL GAS

(Answer on p. 110)



## POWER REQUIREMENTS

(CONTINUED FROM PAGE 106)

detonation. If I go any farther, I'll wind up with a "prediction."

### Hydraulic Torque Conversion

THE automotive engine, as we know it today, does not have the flexibility, or range, to move the trucking loads over the highways at desired speeds as well as start the load without some means of torque conversion. The industry has lived with the gearbox torque converter for a long time and we have heard predictions that the hydraulic torque converter will also enter the truck field. I personally would be disappointed in engineering progress if some form of converter giving uninterrupted acceleration did not enter the field. But when it does, it will be because it fits into the prerequisite triangle we have been discussing.

The hydraulic torque converter has shown itself to have characteristics advantageous to passenger cars and to buses. Neither of these, however, require the extremely wide range of torque multiplication that is necessary in truck work. At its present stage of development, the hydraulic torque converter requires a supplementing gearbox to cover this range.

### Usable and Unusable Hp.

CONSIDERING the most important design requisite, efficiency, and I speak now of overall truck efficiency and not of any particular unit, graph shown in Fig. 4 illustrates the proportion of usable hp. to the available hp. for a particular combination. Two gearboxes have been superimposed on the same chart. Area under the hyperbola represents the total available hp. output. The black area represents the total usable hp. in a five-speed gearbox. The ratio of these two areas shows an overall efficiency for the five-speed box of 84.5 per cent. The shaded area indicates the loss or unusable hp.

Supplementing the five-speed gearbox with an auxiliary ratio gives us the steps indicated by the dotted lines. We have not changed engines and, therefore, the area inclosed by the dotted lines shows the hp. we have

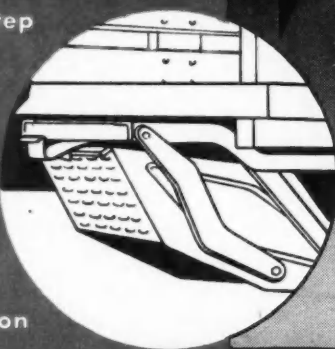
(TURN TO PAGE 110, PLEASE)

## SAF-T-STEP makes the job faster..easier!

No more dangerous and exhausting jumps or climbs when you load and unload! With Saf-T-Step you walk up to your truck bed with the load you carry adjusted for ease and minimum strain. Saf-T-Step cuts fatigue in half and makes the job go faster. Constructed to carry a 1000 pound load Saf-T-Step has a special non-skid feature on step treads. Saf-T-Step is available in 2 models, designed for side or rear mounting and fits most flatrack, stakebody, van trailer or "semi" bodies with custom-like precision.

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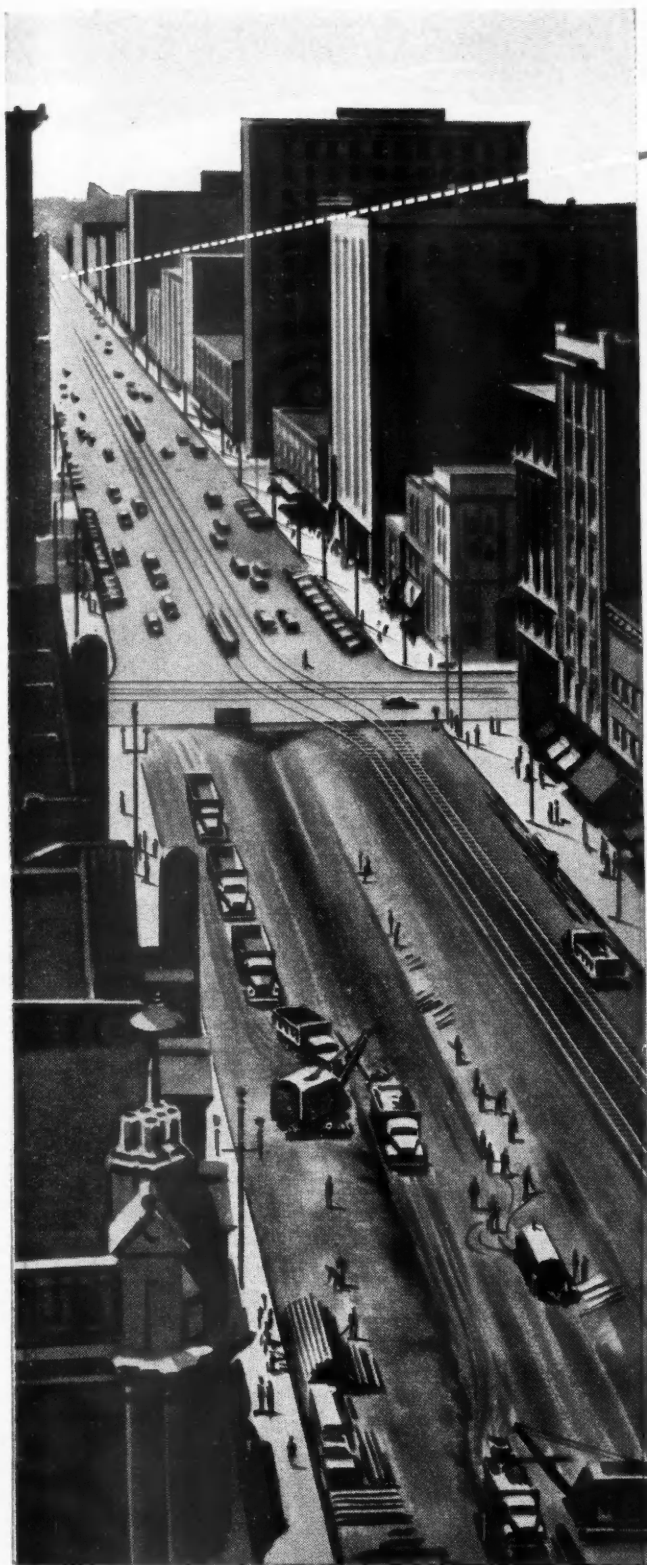


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**M**AIN STREET is widening into a super-highway. Yes, the science of *going* is taking giant strides forward—changing the appearance of our cities—and also creating new problems in the twin science of *stopping* as loads grow heavier and speeds increase.

The American Brakeblok Division contributes to the public demand for fast, economical and *safe* transportation by specializing in Brake Lining. American Brakeblok Heavy Duty Brake Lining is engineered to meet the extra test of modern heavy duty motor transport.

The safety of driver, passengers and load depends on brakes that will stop the vehicle under all conditions. American Brakeblok realizes this responsibility and has directed its engineering skill, research and production facilities to making brake lining that does this job without fail.

To answer the many conditions of heavy duty service, there are three types of American Brakeblok Heavy Duty Brake Lining. All types are of highest quality, but the different frictional properties for different types of brake systems give safer stops at lower cost.

That's why a majority of trucks and buses use American Brakeblok Brake Lining as original equipment and why so many fleet operators and maintenance men specify American Brakeblok Heavy Duty Brake Lining when relining is required.

With American Brakeblok Heavy Duty Brake Lining on your truck or bus you benefit from many years' experience in the brake business. With American Brakeblok friction materials you can count on more smooth, safe stops for your dollar.



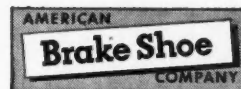
**Stopper says: "Bring your brake problems to brake experts."**



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## American Brakeblok

### BRAKE LINING



AMERICAN BRAKEBLOK  
DIVISION  
DETROIT 9, MICHIGAN

## POWER REQUIREMENTS

(CONTINUED FROM PAGE 108)

regained. The overall efficiency of the 10-speed gearbox has been increased to 91 per cent. Obviously then, the more steps we put in the transmission the closer we approach the 100 per cent output line. An infinite number of steps is not the answer, however, as we must consider driver efficiency.

The efficiency of the gearbox can

be improved without increasing the number of steps by changing the spacing between the steps as shown in Fig. 5. This is also a 10-speed gearbox covering a wider range but with the steps near the high range spaced close together with increasingly less loss in hp., and the steps near the low range spaced wide apart which show considerable loss. The overall efficiency of this transmission is 88½ per cent. This does not indicate improvement; however, remembering that properly selected gear-

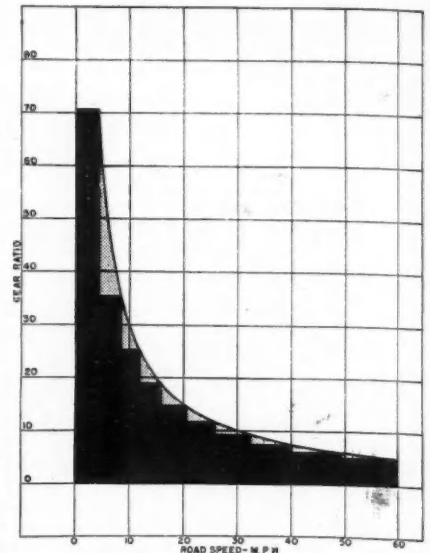


Fig. 5. Gear box efficiency can be improved by changing range spacing. Overall efficiency of this box is 88½ per cent. High range steps are spaced close; low range are spaced wider

boxes will permit starting a vehicle normally in second speed (considering a five-speed gearbox) we see in the first instance that the starting reduction was approximately 27½ to 1. Going to the gathered ratio transmission and starting at a reduction of 35 to 1, since we have increased its range, we will have an efficiency over the driving range of 93¼ per cent. Since a very small percentage of driving time is outside the high efficiency range, we have a very good unit to meet the requirement of high overall truck efficiency.

Were it possible to produce a hydraulic torque converter that would (TURN TO PAGE 112, PLEASE)

## ● WHAT'S NEW?

ANSWER... (To Question on P. 108)

**Natural Gas.** This new lubricant is synthesized from natural or other hydrocarbon gases and has been developed by Union Carbide and Carbon Corp. It has already been marketed in certain areas as Prestone Motor Oil. It has low pour point, high viscosity index, and non-sludging characteristics, making it more desirable for internal combustion engines. It is more expensive to produce than natural petroleum lubricants.

(Another Cartoon Quiz is on P. 112)



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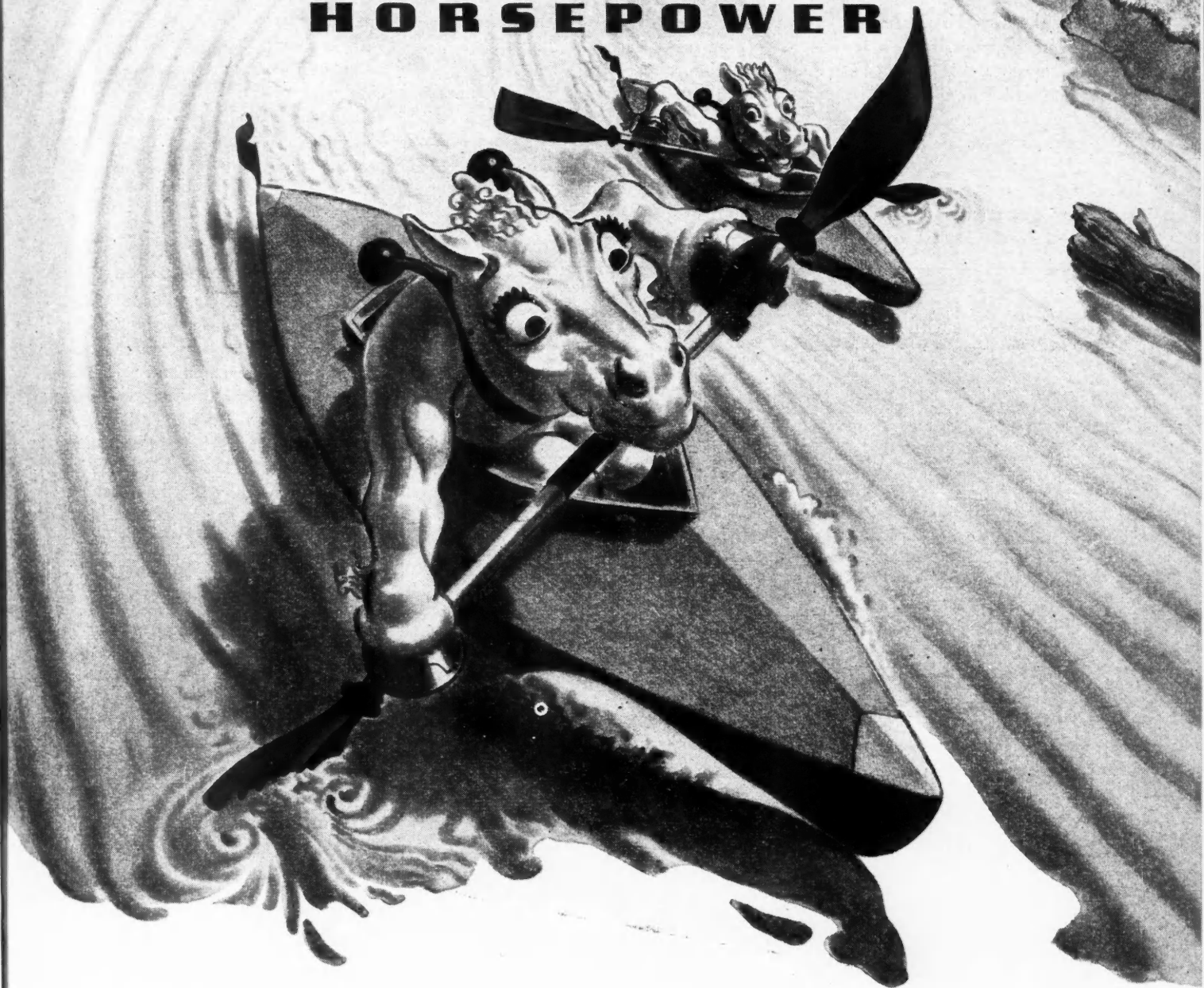


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Head your fleet into the hot summer days ahead with full power in every motor. Use Casite regularly—for top performance and lower operating costs.

Use Casite in the crankcase every oil change and through the air intake of gasoline motors every three months—a pint for all passenger cars and small trucks; 10% of crankcase capacity for all others.

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- Carries oil to the tight spots.
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THE CASITE CORPORATION • HASTINGS, MICHIGAN

## POWER REQUIREMENTS

(CONTINUED FROM PAGE 110)

follow the hyperbola, it would be the best converter possible. To my knowledge, however, this has not been done to date and I doubt if it is possible so long as a supplementing gearbox is necessary.

The acceptable torque converter not only must produce overall efficiency but it must provide ease of control for the benefit of maintaining

high driver efficiency. The close spaced gearbox will require considerable shifting and the advantages will not be realized if the shifting is such that driver fatigue causes skipping of speeds or lugging of the engine.

There are already on the market a number of designs to obtain the desired results insofar as proper steps are concerned. There are four and five-speed gearboxes in conjunction with auxiliary gearboxes of two and three speeds which provide eight,

10, 12 and 15 speeds. There are also two-speed axles which afford double the number of steps in the gearboxes ahead of it. There are auxiliary gearboxes built integral with the main gearboxes.

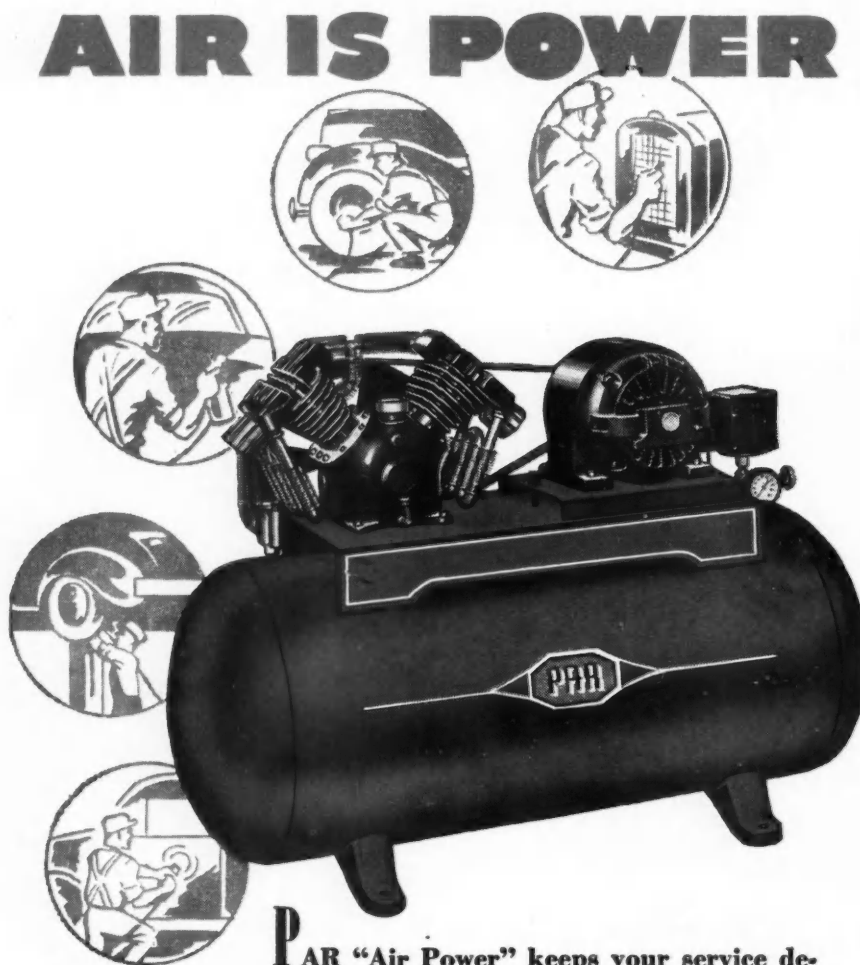
All of these ratios will not appreciably help the driver unless the shifting is easy. Power shifting in some cases is already in operation, more power shifting will become available as synchronizing is more widely used.

### Speed Synchronization

**S**YNCHRONIZING still causes some tongue-in-the-cheek reaction due to premature failures experienced early in its development. This is merely a problem of designing adequate capacity for the loads imposed. The number of synchronized units now on the market is an indication of how successfully this has been accomplished. There are generally two types of synchronizers now in use.

The cone synchronizer and the multiple-disc synchronizer. Due to limitations in space, it is possible to obtain considerably greater capacity with the multiple-disc type as the

(TURN TO PAGE 114, PLEASE)



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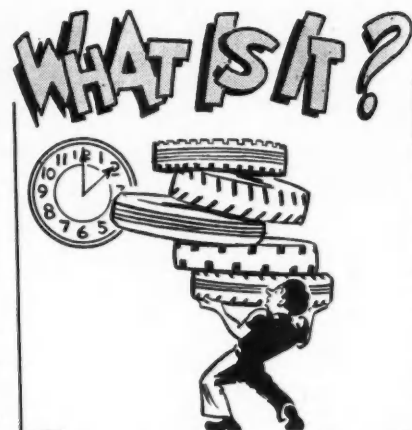
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- ☐ RADIO INDUCTION HEAT
- ☐ ATOMIC POWER
- ☐ A NITRIC ACID BATH
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(Answer on p. 114)



**HEAT BURNS UP  
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**BEAT  
THE  
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**EXCLUSIVE  
SHOULDER  
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THROWS OFF  
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KILLING  
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**H**eat is all right in its place. In truck tires it's poison. Gillette Tires are designed so that excess heat generating rubber on the shoulders and outer ribs is eliminated. Deep cut studs allow cooling air to circulate freely. Hot spots do not form.

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Other features about this tire make it a standout. Beneath the tread, Gillette Hi-Tensiled Rayon Cord and Shatter-Resisting Shock Shield form a carcass that takes more recaps with more miles from every recap!

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**"A BEAR FOR WEAR"**

**GILLETTE**  
**TRUCK TIRES**





## POWER REQUIREMENTS

(CONTINUED FROM PAGE 112)

friction is absorbed by a large number of very thin discs which take up very little room but present a very great area for the friction contact.

The complete power operation of both gearboxes and clutches will be dependent upon the cost as balanced against the value to the operator in increased driver efficiency.

## Brake Considerations

THERE is one other very important item affecting the overall efficiency of truck operation. That is brakes. After the expected high-powered trucks get in operation, a very real problem in brake maintenance will result. There have been many predictions of what would or may yet happen to brake design. I don't wish to make a prediction but I would like to bring out one point, as no discussion in regard to effi-

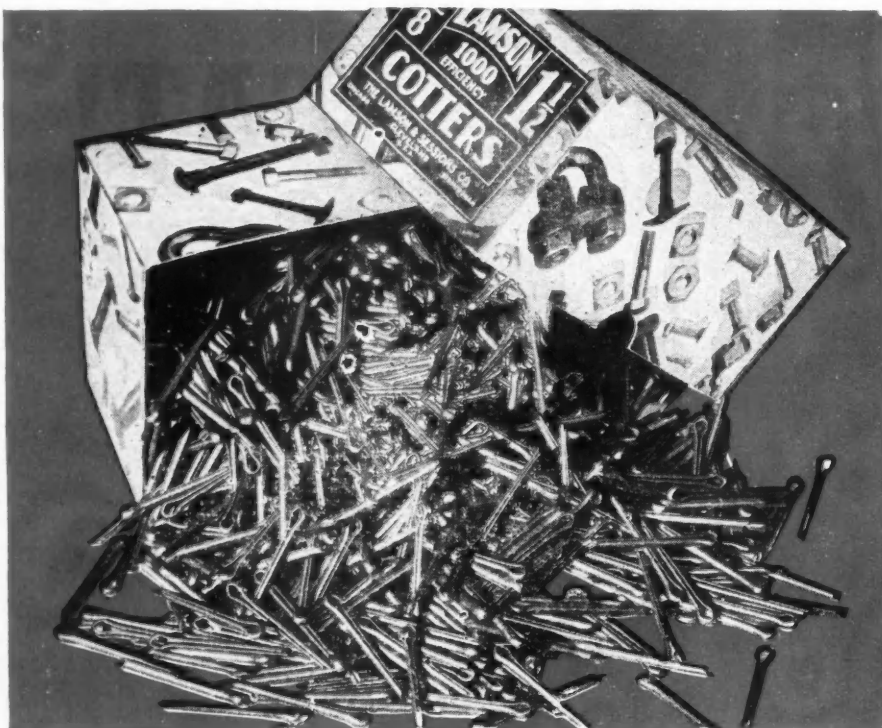
ciency of truck operation can overlook it. Brakes as designed today can and do adequately control the vehicle. But as power goes up, brake life comes down and with present overall width limitations the ultimate in what can be done to prolong their life is rapidly being reached.

The greatest demand on brakes is in down hill hauling where they are almost constantly dragging for the purpose of holding the vehicle at a safe speed. What is needed is an auxiliary brake powerful enough to do this job without using friction surfaces.

There are at present, to my knowledge, two designs on the market, one a water brake, the other an electric induction brake, which can do this job. They both operate as a unit interposed in the drive shaft. They have three disadvantages as I see them: First, cost; second, weight; and, third, there has been no provision made for applying them to a trailer or semi-trailer where most of this type of braking for safety reasons is applied.

I do not consider the last an insurmountable obstacle. The first two may be improved upon and at the same time the disadvantages equalized by savings in service brake maintenance. Maintenance costs demand a solution to this problem and there is no reason to believe that it will not be forthcoming.

Efficiency in technical usage has always meant the ratio of output to input. Laws of physics have limited efficiency to less than unity as it applies to machines. Efficiency, as it has been used in this discussion, must equal something greater than unity as it has been applied to profitable truck transport. The operator must (TURN TO PAGE 116, PLEASE)



## LAMSON "Efficiency" COTTERS *are easier to get, easier to use!*

Delivery of Lamson "Efficiency" Cotter pins can usually be made from stock or within two weeks. Designed for easy insertion through hole in bolt and slot of castle nut, the Lamson "Efficiency" Cotter acts as a drift pin to correct mis-alignment in the parts joined. One leg is longer than the other, aiding separation of the legs by blade of screw-driver, blow of wrench or twist of pliers. Sizes range from  $\frac{1}{16}$ " to  $\frac{3}{4}$ " diameters, for Lamson really makes a complete line of cotters. Ask your jobber for the Lamson "25" Line or for standard packages.

THE LAMSON & SESSIONS COMPANY, 1971 West 85th Street, Cleveland 2, Ohio  
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

CAP AND SET SCREWS • SEMI-FINISHED NUTS • COTTERS • LOCK NUTS • STUDS • CLIP BOLTS

# LAMSON & SESSIONS

Ask your Jobber for the Lamson Line

SPRING CENTER BOLTS • BATTERY BOLTS • LICENSE BOLTS • WASHERS • TRACTOR BOLTS • HI-NUTS

## ● WHAT IS IT?

ANSWER... (To Question on P. 112)

**Radio Heat.** It takes 7 hours to cure a big truck tire in a steam mold. Because of this, millions of dollars must be tied up in tire molds. Radio induction heat does the job in  $\frac{1}{5}$  the time and does it better and more uniformly. Plans are now underway for using this method in tire plants.

(Another Cartoon Quiz is on P. 116)

## ***SOFT PRESSURE DOES IT!***

Softly, gently, Steel-Vent contacts the cylinder walls—always just the right amount of pressure—always a long-life result.

That's the significance of *Soft-Pressure*, as employed in the Hastings Steel-Vent. It's what makes this ring ideal in rebores, re-sleeves and extreme tapers.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICH.

Hastings Ltd, Toronto

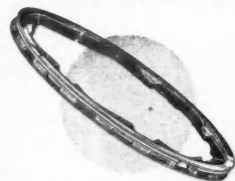
### **SOFT PRESSURE DOES IT — IN REBORES, TOO**

100% sold on Steel-Vents, says this automotive parts company: "We have handled Hastings piston rings since 1937 and are convinced 100% that Steel-Vents are working completely satisfactory in our rebores as well as re-ring jobs. We recommend and install these rings for all our fleet and industrial accounts for all their rebores and re-ring jobs."



## **HASTINGS STEEL-VENT PISTON RINGS**

U. S. PAT. 2,148,997.



**TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS**

## POWER REQUIREMENTS

(CONTINUED FROM PAGE 114)

realize more dollars in freight revenue than he is required to spend in operating cost.

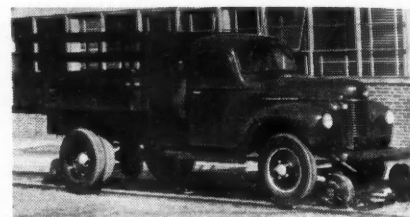
Distinctive styling gives individual personality to a truck. If pleasing to the public, it will be accepted on the highways with a minimum of prohibitions that will enable the operator to carry economical cargoes. If practical, accessibility will cut down maintenance costs.

Adequate power, with reasonable limits in top speed, will reduce public condemnation and the stimulating force for restrictive legislation. The truck operator's hands will be further freed for diversified hauling plans and ton-miles per gallon of fuel will be doubly benefited.

Torque conversion that transmits maximum available power to driving wheels over a wide range of tractive effort requirements will further increase the ton-miles per gallon of fuel.

## Rail Truck Developed For Road or Track Use

COMPLETION of engineering and design for the postwar models of the Evans Auto-Railer, the dual purpose railroad and highway vehicle, is announced by Ferd Keihn, manager of the Auto-Railer division of Evans Products Co., Detroit.



Auto-Railers are equipped with retractable steel flanged pilot wheels to hold the vehicle on railroad tracks. Tractive power is provided by standard vehicle wheels, equipped with special tires designed for maximum traction on wet and slippery rails. For highway operation, the pilot wheels are retracted by controls from the driver's seat. A full speed reverse gear is incorporated into the standard truck shift for rail operation.

Two models of the Auto-Railer will be produced in 1946, a 1½-ton railroad maintenance of way truck and a ¾-ton railroad inspection car. The 1946 inspection car will have an all-steel body, combining the strength of a panel truck with the comforts of a deluxe station wagon, according to Mr. Keihn.

STOP

# CLOGGED-UP COOLING SYSTEMS

with Warner Service Cleaner  
and Warner Cooling  
System Protector

● A clogged-up inefficient cooling system is often the real cause of trouble in carburetion, ignition, compression and lubrication! Don't let cooling system failures take your trucks out of service—use Warner Service Cleaner and Warner Cooling System Protector.

Warner Service Cleaner thoroughly cleans the cooling systems of trucks and tractors. It quickly emulsifies and floats away oil muck and grease—removes rust and scale deposits—prevents general overheating and local engine "hot-spots." It is non-acid, non-poisonous, non-burning, harmless to human skin, safe for all metals.

Warner Cooling System Protector prevents rust and corrosion damage to the engine by providing a thin protective coating on all metal parts in the cooling system. It neutralizes acidity

and keeps the cooling system clean.

Start now to use Warner Cooling System Products for preventive maintenance. Send coupon below for your free copy of "Don't Take The Rap," Warner Service Manual.

Famous Warner Cooling System Products are Nationally Advertised Nationally Used.

**WARNER-PATTERSON COMPANY**  
920 S. MICHIGAN AVENUE, CHICAGO 5, ILL.

Send coupon  
TODAY for  
complete  
information!

Warner-Patterson Company, 920 S. Michigan Ave., Chicago 5, Ill.  
I would like a free copy of "Don't Take The Rap," containing complete information about Cooling System Preventive Maintenance.

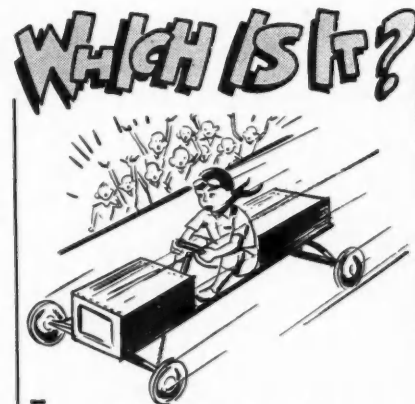
Name and position or title .....

Name of firm .....

Street .....

City and State .....

STANDARD OF PROTECTION FOR MORE THAN 25 YEARS



FOR THE FIRST TIME SINCE 1941, THE ALL-AMERICAN SOAP BOX DERBY WILL AGAIN BE HELD THIS YEAR, SPONSORED BY.....

- ☐ FORD
- ☐ CHEVROLET
- ☐ DODGE
- ☐ LION'S CLUB OF AMERICA

(Answer on p. 118)



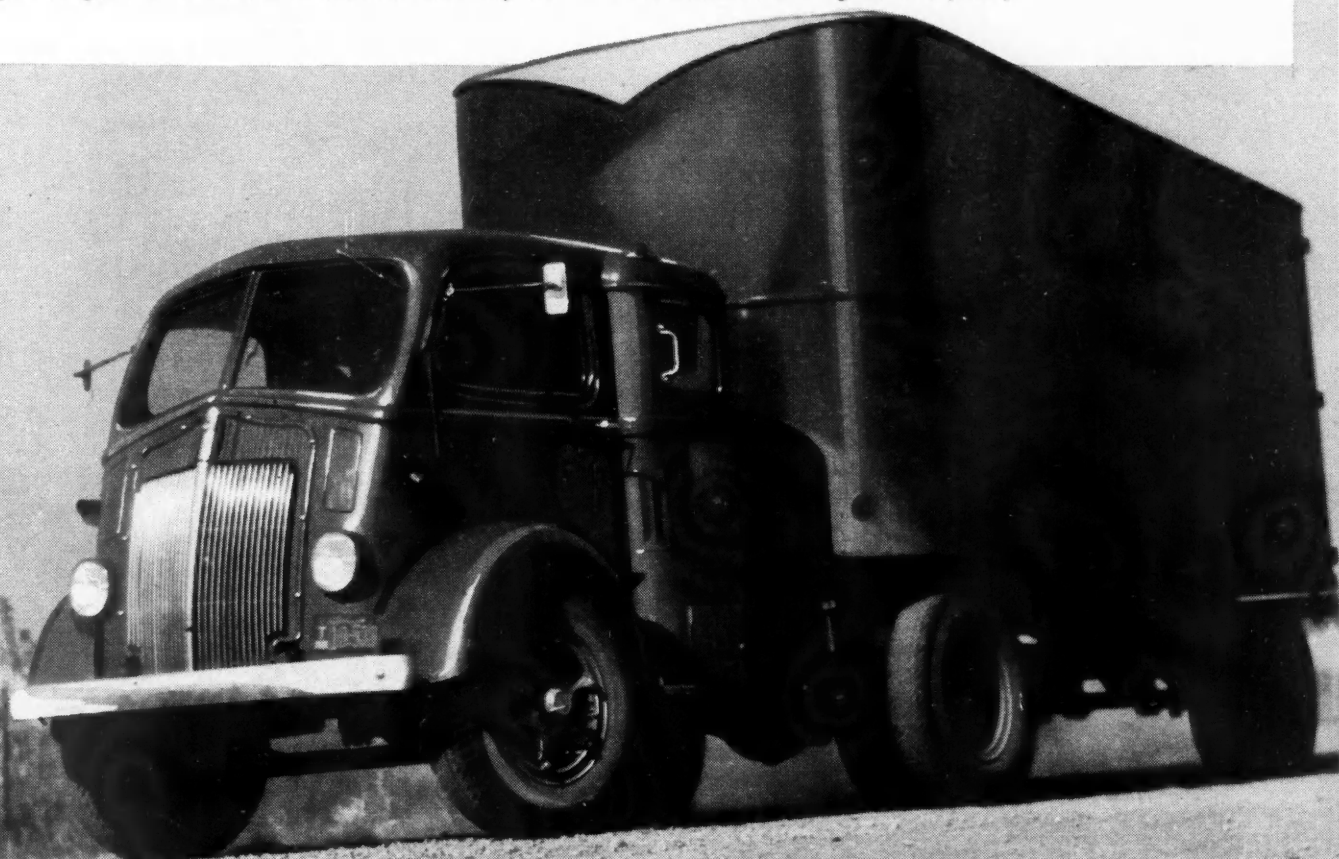
# Thermoid the Longer-Life Line

**T**EST Thermo-Blocks on your units. Put them on your toughest runs . . . on long hauls . . . on short stop-and-start service. Prove to yourself that Thermo-Blocks will give you added miles of dependable brake life and lower upkeep costs.

Read these statements from fleets using Thermo-Blocks. ". . . give longer life and more satisfaction than any we

have ever used." ". . . absolutely dependable . . . an important factor in keeping our deliveries on schedule with lower maintenance costs."

The very best materials, workmanship and engineering are put into Thermo-Blocks. That's why they are so satisfactory —the best brake lining for heavy duty.



**Thermoid**  
**THE Longer-Life LINE FOR HEAVY-DUTY JOBS**

**Thermo-Blocks • Clutch Facings • Fan Belts • Radiator Hose**

**THERMOID COMPANY, TRENTON 6, NEW JERSEY**

## TORQUED BUT NOT TIGHT

(CONTINUED FROM PAGE 56)

train standing in the station and checks the wheels with a hammer for preventive maintenance. Let's take off those U-bolts and look at them."

"But, first," suggested the spring maker, "let's measure the distance from the nuts to the ends of the bolts. Here it is— $1\frac{3}{8}$  in. Now we can remove the nuts from the U-bolts."

"There's the trouble!" exclaimed the fleet operator, holding the nut beside the U-bolt. "With that distance from the end of the bolt to the nut, it is obvious that the nut was down on the end of the thread, and much of the torque was being used in an unsuccessful effort to cut longer threads on the bolt. Sorry we caused you the trouble of this trip."

"That's all right," said the spring maker. "It's these little things that cause trouble. The big things, no-

body misses. So, while we are at it, let's look at the spring seats or pads on the axle, because these sometimes get worn rounded, especially when the springs have been allowed to move due to loose U-bolts. No, these are all right. They fit the spring plates as they should.

"One of the causes of stretched U-bolts," continued the spring maker, "may be off-the-road use, or over rough detours. Winter's icy ruts are hard on chassis parts. When U-bolts are a little loose, they tend to get looser rapidly, because of the hammering action of the loose parts. As you know, a properly tightened bolt is actually stretched a little. In the U. S. Army, it was recommended practice to use .003 in. of stretch per inch of length, as the measurement of a correctly tightened bolt. Consequently, a U-bolt that is 16 in. long (many are much longer) should be stretched 16 times .003 in. or .048 in. That's nearly .05 in. or  $1/20$  in. and a surprising stretch in a heavy bolt!"

"But measuring the stretch of U-bolts isn't practical," said the fleet operator.

"True," agreed the spring maker. "Probably the most practical method is to stretch one or two U-bolts to the breaking point with a torque wrench, and then use from two-thirds to three-fourths of this torque as the proper limit for tightening U-bolt nuts. Another important help is to re-tighten the U-bolts after the first day of use, when new or repaired springs have been installed. The bedding down of the spring plates usually allows considerable tightening to be done."

"We'll try those suggestions," said the fleet operator. "And many thanks for the suggestions."

END

(Please resume your reading on P. 57)

## ● WHICH IS IT?

ANSWER... (To Question on P. 116)

Chevrolet. The National Soap Box Derby is co-sponsored by Chevrolet and various newspaper men throughout the country. Winners in over 100 cities will go to the finals at Akron to compete for trophies. A 4-year college scholarship goes to the first place winner.

(Another Cartoon Quiz is on P. 120)

## SKIPPING IS NO FUN FOR MOTORS



When a truck motor skips, sputters, misfires — it's a cinch something's wrong. Maybe ignition or timing, but just as likely, fouled plugs — a sure sign of a generally gummed up interior. Dirty motors simply wear out faster in hot weather... MARVEL MYSTERY OIL will head off this danger for you. This famous oil and gasoline Additive works TWO WAYS to insure internal cleanliness and proper lubrication all summer.

First, MARVEL MYSTERY OIL DISSOLVES the sticky scum of sludge and gum that steals power and slows up engine efficiency. Second, MARVEL MYSTERY OIL REINFORCES all lubricants to develop sensational heat resistance. As a result, rings and valves swap mucky coats of gum and varnish for tough sheaths of lubricant armor — a film that even withstands top cylinder temperatures. Meanwhile, plugs, pump screens, and tiny oil and fuel lines are thoroughly purged and kept clean.

Added to crankcase oil and gasoline, MARVEL MYSTERY OIL pays off with an amazing jump in pickup, pep and power. Don't miss out on the many maintenance advantages for you in this remarkable product... order from your jobber TODAY! EMEROL MANUFACTURING CO., Inc., 242 West 69th St., New York 23, N. Y.

## MARVEL MYSTERY OIL





ONLY ONE WAY TO *Correctly* Tension A STUD OR BOLT



## **Snap-on TORQOMETERS**

**insure accuracy — tell  
tension as bolt  
is tightened...**



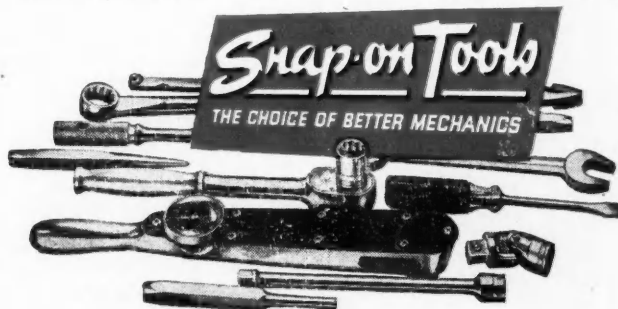
"GUESSWORK" tensioning on cylinder studs, main bearings, connecting rods and clutch assemblies can cause endless trouble—leaky gaskets, ring failure, binding of bearings, and sticking valves and pistons. The sure way to prevent dangerous distortion is to *know* the tension — to the exact foot-pound—as the bolt is tightened with a Torqometer!

A Snap-on Torqometer is as easy to use as an ordinary wrench. As you tighten the bolt you *watch* the

tension increase on the easily read dial, and stop at the exact tension required... "factory pressure" every time!

Widely used for automotive work is model TQ-150, standard 150 ft. lb. Torqometer, which accepts a 1/2" square drive socket and can be used with extensions and ratchet adaptors. Other sizes from zero to 30 in. lbs., up to 2000 ft. lbs. Write for free copy of Snap-on's car and truck tension chart!

**SNAP-ON TOOLS CORPORATION**  
#026-F 28th AVENUE KENOSHA, WISCONSIN





# WHAT'S COMING?

SPUN STEEL MAY, IN THE NEAR FUTURE, BE ONE OF THE MAIN COMPONENTS OF ....

- |                                       |   |
|---------------------------------------|---|
| <input type="checkbox"/> SAFETY GLASS | <input type="checkbox"/> TRAILER BODIES |
| <input type="checkbox"/> TRUCK TIRES  | <input type="checkbox"/> PISTONS        |

(Answer on p. 123)



## NEW AUTOCAR ENGINE HAS MANY REFINEMENTS

NO entirely new models of Autocar trucks are being produced at this time, nor are any likely to be until the present oversold emergency has been licked. That need not imply that Autocar's engineering staff has been laid off or all converted into production men. Far from it. Some new models are now in the road testing stage and others even farther along would have been announced early this year but for the reasons stated above.

The new and improved Autocar No. 501 "Blue Streak" engine is now being installed in the current production of those larger models for which the older 501 engine was standard at the time when the order was placed. This new engine incorporates many notable engineering developments whereby the output has been increased from 145 to 165 b.h.p. with no change in the displacement of 501 cu. in. Noteworthy new features of this improved powerplant include a down-draft carburetor, new cylinder block with larger intake passages, a new camshaft which improves the timing and gives greater lift to the valves, new intake and exhaust manifolds, and a new type of governor which gives very close regulation. Also, the accessory driveshaft and housing have been altered to permit the mounting of the fuel pump on the left side of the engine.

Another new feature recently applied to current Autocar production is the improved design of the front fenders whereby they are entirely separate from the running board and splash apron. This construction makes it possible to remove the fender by loosening only four bolts. When the fender is thus removed, complete accessibility is afforded to both the engine and the front running gear. This feature of easy removal is also valuable when fenders are damaged and it becomes necessary to remove them for straightening.

A new step-type gasoline tank recently applied to Autocar production will be welcomed by the trade. This tank, mounted under the cab, is hung from brackets bolted to the frame rail and can be removed quickly. The step on the outer surface is also readily detachable should need arise. This new Autocar step-type tank has a capacity of 50 gal. It is sturdily constructed of 12-gage metal and is welded throughout. Also, it is reinforced by two baffles welded on the inside.

The filler cap of the new step-type tank is conveniently located at the front end of the tank and at the same time the gasoline feed line and the fuel gage sending unit are readily accessible by merely lifting the floor board. This new tank is designed for mounting on either the left or the right side of the chassis, but in either installation the filler cap is at the front. When two of those tanks are used on the same chassis, a three-way valve, conveniently mounted on the seat box, permits the driver to shift from one tank to the other without stopping the vehicle.



# GRIZZLY

REG. U. S. PAT. OFF.

## ANSWERS YOUR BRAKE LINING QUERIES

"Which brake lining should I use?" If that's your problem, perhaps Grizzly's answers to a few questions asked by other fleet owners and service managers may help you decide.

**Q.** What is Grizzly's background?

**A.** Grizzly has a sound background of 30 years experience in the manufacture of fine brake lining for both automotive and industrial fields.

**Q.** What about Grizzly production?

**A.** Grizzly is one of the largest producers of molded brake lining and operates two large capacity plants employing the most modern mass production techniques.

**Q.** Can Grizzly handle individual brake lining problems? **A.** Yes, for these reasons: Grizzly is large, yet highly flexible and those factors plus constant research and

alertness to new brake lining developments enable Grizzly to solve brake lining problems of widely divergent natures.

**Q.** What are the characteristics of Grizzly brake lining? **A.** Here are just a few Grizzly brake lining features: (1) It is an exclusive asbestos-friction compound, molded on a strong wire-grid back. (2) It maintains a constant high coefficient of friction throughout longer life. (3) It is precision machined for quick, easy installation. (4) It provides all around superior braking performance under all conditions of service.

There's a Grizzly Distributor near you—call him today! Grizzly Manufacturing Company, Paulding, Ohio. Plants at Paulding and Bell, California.

"Bear in Mind". . . ask for



# GRIZZLY

REG. U. S. PAT. OFF.

## BRAKE LINING



## ALL-STEEL BODIES FOR VARIED SERVICES

**I**NFORMATION of the Oltman-O'Neill Co. has been announced simultaneously with the start of production of the new firm's all-purpose "Cargo-Tested" universal truck bodies.

The new type bodies are being built to the "Cargo-Tested" specifications of the widest possible variety of truck users. They are all closed van-type bodies with spring tension double doors that open full-width for loading any kind of cargo from produce to package freight. Their non-skid steel floors are said to be unusually strong and easy to keep clean.

They are of all-steel, all-welded construction, built of high tensile strength steel throughout to make them capable of withstanding great stresses and strains, according to the manufacturer.

Among the new design characteristics of "Cargo-Tested" bodies are these features: a welded, grid-type rigid frame construction; modern rustproofing throughout; smooth sides for beauty, and a roof and sides of hot-rolled sheet steel that takes paint readily for permanent neat appearance.

Initial orders have been placed by dealers for installation at the Oltman-O'Neill factory on new truck driveaways. In such cases the body delivers itself with the new truck, ready for the customer when received by the dealer, the company states.

Mass production methods in body manufacture have been inaugurated as a result

## ● WHAT'S COMING?

ANSWER... (To Question on P. 120)

Steel, spun into fine, tough threads may be one of the main components of the tire of the future. Anticipated replacement of cotton and rayon threads with the spun steel will reduce the number of plies on a tire, a factor that will be especially advantageous for the truck tire.

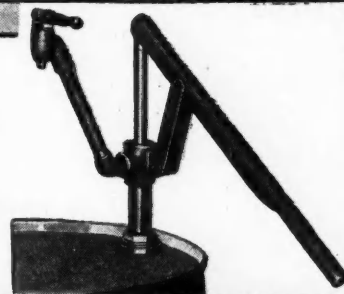
(Another Cartoon Quiz is on P. 126)

of truck user surveys that indicated an established preference for all-steel bodies by many large volume buyers in a number of trucking fields.

Also as a result of these surveys, initial output is being held to the popular 12- and 16-foot lengths most in demand. The new bodies are 78 in. high and 86½ in. wide, inside dimensions. They are 90 in. wide outside.

L. M. Oltman, president of the newly-formed company, is a former sales executive of the Dodge Truck Division of Chrysler Corp. The other officers of the company are J. V. O'Neill, vice-president in charge of production, and P. J. O'Neill, secretary-treasurer.

*Now*-pump  
**HEAVY GREASES  
FAST!**



## BISHMAN NO. 825 GREASE PUMP

**EASY PUMPING**—Resistance reduced to a minimum by the spider design of the piston and intake opening which provides a cut-through action as well as exceptionally large intake capacity. HANDLES ANY FLUID THAT SEEKS ITS OWN LEVEL. Pumps up to 3 gallons per minute on heavy greases, more on light fluids.

**BIG CAPACITY**—The combination resilient rubber Cup Seal and Valves, fitted onto top of both piston and intake openings, open automatically on the piston downstroke, to permit passage of fluid, and close automatically on the piston upstroke, making an effective seal between piston and cylinder wall.

**EVEN FLOW** is achieved by the compensating air pressure in the hollow center of piston plunger, which is built up by the pumping action. This eliminates the splashing which is usual with most piston type pumps.

**FITS BOTH 2" and 1½" Barrel Openings.** The bung bushing has 2 sets of threads and fits on 15, 30 and 60 gal. drums. Pump head has automatic take-up seal, no need for packing nut.

No. 825 with regular spout; No. 825-A with SHUT-OFF VALVE FILL SPOUT as shown; No. 825-B with hose and spout for filling transmissions, etc.

ASK YOUR JOBBER or Write Us

**BISHMAN MFG. CO., OSSEO, MINN.**

**BISHMAN**





## CEILINGS OFF CERTAIN TRUCKS; NEW PRICING PLAN

Price ceilings have been suspended on trucks of more than 40,000 lb. gross vehicle weight and on certain trucks with special body mountings when sold as complete units. The latter includes fire fighting equipment, tank trucks, street sprinklers, snow plows, garbage trucks and patrol wagons. Also included in the suspension, authorized by Amendment 20 to Supplementary Order 129, dated May 13, 1946, are all types of busses, hearses, flower cars, ambulances and motorized repair shops.

Under the same date, Maximum Price Regulation No. 610 establishes four methods of establishing prices on commercial vehicles not affected by the suspension order. The four methods are as follows:

Method One is used for pricing vehicles not substantially different from similar models priced under revised MPR No. 136. For such vehicles the manufacturer's ceiling prices are those charged on March 31, 1942.

Method Two provides a means of computing ceiling prices by adding to or subtracting from the vehicle's 1942 price the net increase or decrease in direct labor and materials costs attributable to changes in specifications.

Method Three provides a means, at the manufacturer's option, of computing ceiling prices by the general reconversion pricing formula provided for OPA for industries converting their production from war to peace time goods. This method, in general, permits computation of all costs factors and applying the net changes to the January, 1941 price of the vehicle in question.

Method Four is used for establishing prices on vehicles radically different from any models of the same make previously manufactured. Under this method, the manufacturer is provided with a set of standards under which he selects as his proposed price the ceiling price of the most similar vehicle produced by another manufacturer and adjusts his price by the differences in direct costs due to variations in specifications from the model selected.

Commenting on the reason for suspension of price controls over vehicles in the categories mentioned above, the Office of Price Administration states that the costs of these vehicles do not enter substantially into living and business costs because when amortized, their original cost is a com-

paratively small part of the cost of doing business. Other important influencing factors were that most production in these categories was already sold out for the balance of 1946 at firm prices, and that most sales of these vehicles were to municipalities or other large users at negotiated prices.

Resellers' margins will reflect the customary initial percentage margins over cost except to the extent OPA determines absorption factors should be applied to prevent manufacturers' prices from reaching consumers.

## FORD ADDS LARGER MODELS

A new 2-ton nominal rating for the 1946 Ford truck has been announced by J. D. Ball, sales manager of the Ford Motor Co. truck division. The new rating applies when the truck is equipped with a two-speed axle, heavy-duty, double-channel frame, 8:25 x 20 10-ply dual tires and power brake. Gross vehicle weight ratings are 14,500 lb. and 15,000 lb. respectively for conventional and cab-over-engine models.

"In releasing the two-ton rating," Mr. Ball said, "Ford becomes the first manufacturer to provide V-8 power in the two-ton truck class. It is another step in our plans to make available to operators an increased range of truck sizes and types."

The new truck is available with either the 100 hp. V-8 engine, or the 90 hp. 6-cyl. truck engine.

Additional engine sizes are being planned for Ford trucks in 1947, Mr. Ball disclosed.

## C. W. PERELLE HEADS GAR WOOD

Charles W. Perelle, formerly vice-president in charge of manufacturing of Consolidated-Vultee Aircraft Corp., has been elected president of Gar Wood Industries, Inc., according to an announcement by John J. Bergen, chairman of the board.



Mr. Perelle brings to Gar Wood a managerial production and organizational knowledge that has twice been called upon by the War De-

partment to help solve specific production crises. A native of Alaska, Mr. Perelle broke into the aviation industry in 1930 and rose in seven years from a \$175-a-month tool designer to be a \$175,000-a-year vice-president of Hughes Tool Co.

## BODY ENGINEERS FORM SOCIETY

Announcement has been made of the formation of a new engineering society called "The American Society of Body Engineers, Incorporated" by its president, I. Louis Carron, body engineer of the Detroit Harvester Co. The society has been organized as a non-profit corporation with national headquarters in the Rackham Memorial Building in Detroit. This is an aggressive organization composed entirely of leading body engineers from practically all the companies in the automotive industry.

A Technical Convention will be held in October in the Rackham Memorial Building in Detroit, with Carl W. Cenzer as general chairman. Elaborate plans are already well underway. Committees are being formed and are to be headed by capable and experienced men who have devoted many years toward the progress of body design and engineering.

## SET-ASIDE SALES FOR VETERANS

Veterans had a chance to buy approximately 5700 surplus motor vehicles in the first major sales under the new "set-aside" priority which began May 20, at Port Hueneme, Cal. The sale was for certified veterans in California, Arizona and part of Nevada. The list included 5499 new vehicles, mostly trucks of light sizes up to 2½ tons, and about 200 used trucks. Set-aside sales for veterans will be conducted in every War Assets Administration region later.

## SEIZED TRUCK LINES SUE U. S.

Three Kansas City trucking lines have filed suits in the U. S. Court of Claims for damages alleged to have grown out of government operation and control. Plaintiffs in the suits are Byers Transportation Co., asking \$872,045 in damages; Wheelock Brothers, Inc., asking \$997,218; and Knaus Truck Lines, Inc., asking \$917,402.

The three companies were part of 103 taken over by the Office of Defense Transportation in 1944 as a war emergency measure to avert a strike by the Teamster's

(TURN TO PAGE 126, PLEASE)



# "GET ME A WARD LAFRANCE FOR PLUS PERFORMANCE"

*Extra performance when it's essential—  
that's the record of Ward LaFrance.*



Both in power and pay-load capacity, Ward LaFrance heavy duty trucks and over-the-road tractors are designed to exceed basic requirements. When the going is tough and the load heavy, you'll appreciate these plus performances engineered into the new, big Ward LaFrance trucks: reserve powered

6-cylinder strength, frame with 85,000 pound yield strength, special spring design, extra capacity cooling system, ball socket steering assembly.

Get the performance you have been looking for . . . and at low operating cost. See your local Ward LaFrance dealer today.

*Look for the big truck with the exclusive "flat top" fender*

**WARD LA FRANCE TRUCK DIVISION  
Great American Industries, Inc.**

**ELMIRA,**



**NEW YORK**

## CCJ NEWSCAST

(CONTINUED FROM PAGE 124)

Union. If the charges are upheld, the federal government's seizure of the 103 mid-west motor freight carriers will cost the government \$2,786,664, in addition to unspecified amounts previously expended during and after the period of seizure.

### MILNE NAMED ROADEO MASTER

George F. Milne has been appointed "roadeo master" for the American Trucking Associations annual roadeo in Chicago

this fall, according to an announcement from Charles G. Morgan, Jr., director of the Safety and Operations division of ATA.

In addition to his work with the roadeo, Mr. Milne will personally supervise preliminary truck driving contests now being held in 20 states to determine eligibility of state champions who will compete in the national event in Chicago.

### 4868 TRUCK TRAILERS FOR JAN.

The January production of civilian truck trailers with a rated capacity of five tons or more reached 4868, according to a report released by the Bureau of Census and based

on reports from 107 manufacturing plants.

Production figures for each type of trailer have been prepared in the Industry Division by the Transportation Equipment Unit and the list follows:

Truck Trailers: Production, January, 1946  
(Preliminary)

Type of Trailer	January 1946	
	Number	Per Cent of Total
Total Trailers . . . .	4868	100
Vans . . . . .	2777	57
Insulated . . . . .	153	3
Refrigerated . . . . .	280	6
Furniture . . . . .	26	1
All other closed-top trailers . . . . .	2116	43
Open top . . . . .	202	4
Racks . . . . .	481	10
Cattle racks . . . . .	286	6
Stake racks . . . . .	195	4
Tanks . . . . .	162	3
Petroleum . . . . .	75	1
Other <sup>1</sup> . . . . .	87	2
Pole and logging . . . . .	336	7
Single axle . . . . .	247	5
Tandem axle . . . . .	89	2
Platforms . . . . .	787	17
Low-bed heavy haulers over 15-ton capacity) . . . . .	163	3
Off-highway . . . . .	46	1
Dump . . . . .	39	1
All other . . . . .	77	1

n.a. Not available.

<sup>1</sup> Includes milk and other tanks which were combined to avoid disclosing the operations of individual plants.

(TURN TO PAGE 128, PLEASE)

Built to handle  
the TOUGHER jobs



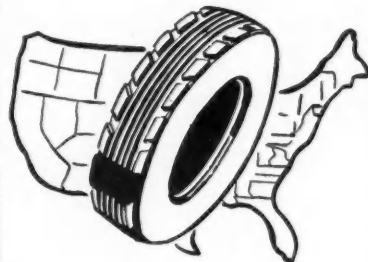
Blood Brothers propeller shafts have been standard equipment on FWD trucks for 30 years.



**BLOOD BROTHERS**  
**UNIVERSAL JOINTS**

BLOOD BROTHERS MACHINE CO.  
ALLEGAN, MICHIGAN  
DIV. STANDARD STEEL SPRING CO.

WHO SAID IT?

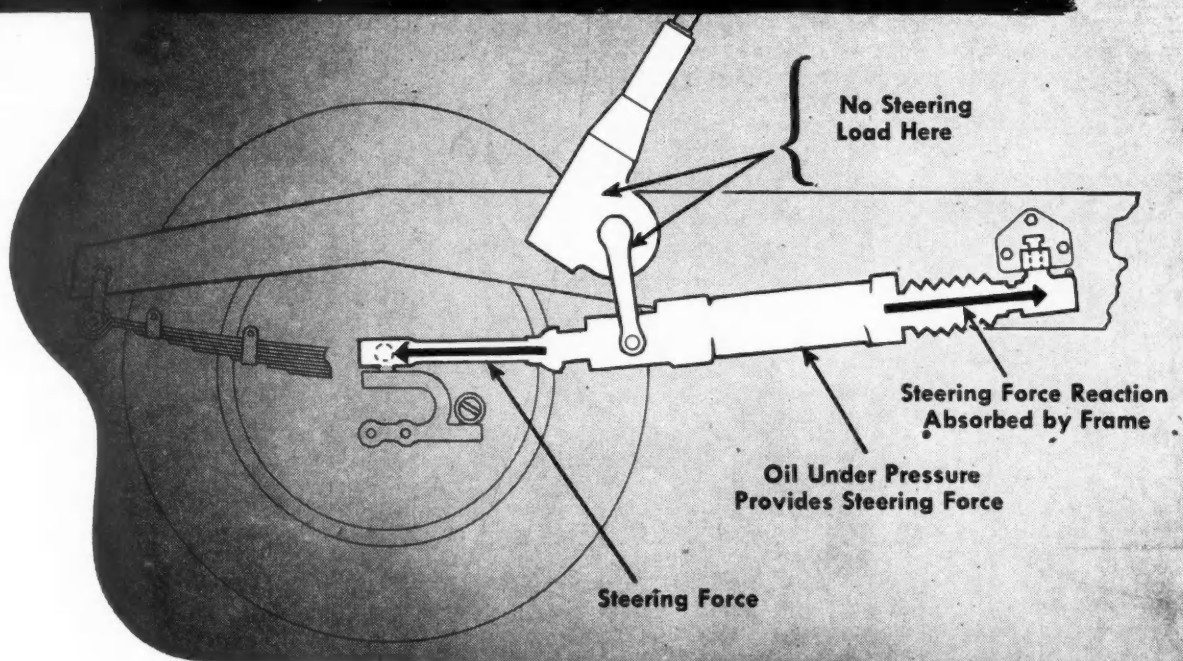


WHO, BACK IN THE 20's, LED WITH THE SLOGAN, "AMERICANS SHOULD PRODUCE THEIR OWN RUBBER!"

- ☐ B. F. GOODRICH
- ☐ CHARLES GOODYEAR
- ☐ HARVEY S. FIRESTONE
- ☐ HERBERT HOOVER

(Answer on P. 128)

**The Gear and Housing Carry NO STEERING LOAD**



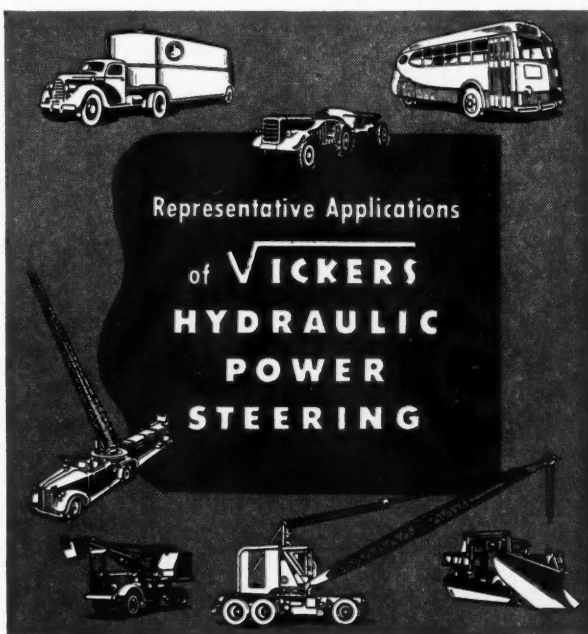
## *With* **VICKERS** **HYDRAULIC POWER STEERING**

Neither steering load nor road shock can reach the steering gear and housing when Vickers Hydraulic Power Steering is used. All the steering load is carried by the hydraulic cylinder, and road shocks are transmitted to the frame. The Vickers booster unit is controlled by the pitman arm and actuates the drag link directly. Direct application of power assures protection against wear or failure in the steering gear proper—makes it possible to use a lighter, more economical gear and housing with complete safety.

There are many other advantages of effortless Vickers Hydraulic Power Steering. Ask for Bulletin 44-30 which contains complete information.

**VICKERS Incorporated**  
1418 OAKMAN BLVD. • DETROIT 32, MICHIGAN

Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT  
LOS ANGELES • NEWARK • PHILADELPHIA • ROCHESTER • ROCKFORD  
TULSA • WORCESTER





## CCJ NEWSCAST

(CONTINUED FROM PAGE 126)

### DAVISBILT CO. REORGANIZES

The Davisbilt Products Co., Cincinnati, Ohio, specialists in the design and manufacture of fluid carriers, are now affiliated with the Liberty Aircraft Products Corp., Farmingdale, Long Island.

Members of the new board of directors are: Oliver H. Payne, chairman of the board; J. F. Winchester; E. H. Malden; John A. Payne; Robert Simon. Executive officers are: E. H. Malden, executive vice president; Leonard Duerr, vice president

in charge of engineering; Erwin Schwartz, vice president in charge of production; Joseph S. Keller, vice president in charge of purchasing; and William T. Snyder, assistant secretary and assistant treasurer.

### IHC LISTS PERSONNEL CHANGES

International Harvester Co. has announced the following changes in branch management personnel:

N. G. Hites has been named manager of the company's Columbus, Ohio, branch, succeeding H. W. Moody, who has been appointed manager of the motor truck branch at Albany, N. Y.

R. G. Greer has been appointed assistant manager of the Salt Lake City branch, and D. I. Persons has been made branch manager at Spokane, Wash. F. R. Johnson is the new assistant manager at the Cheyenne, Wyo., branch, while W. K. Kittoe has been made assistant manager of the Spokane, Wash., branch. H. F. Thornburg becomes assistant manager of the Salina, Kan., branch, and J. H. Barr takes over as assistant manager at Syracuse.

### BENDIX-WESTINGHOUSE EXPANDS

Four new regional offices have been opened by the Bendix-Westinghouse Air Brake Co. of Elyria, Ohio, according to an announcement made by Floyd L. Wheaton, sales manager for the company.

The New York office is located at 8206-7 Empire State Building and will be under the supervision of A. R. Leukhardt, regional manager. In Detroit, J. V. Ralston, assistant regional manager, will direct the company's activities from offices at 217 in the Boulevard Building. E. W. McKay, regional manager, will represent the company in Atlanta from headquarters at 69 Mills St., N.W., and W. H. Parish, regional manager, will be in charge of the Dallas office at 313 Andrews Building.

### FORD NAMES VICE PRESIDENTS

Four new vice presidents have been elected by the Ford Motor Co. to head major operating divisions. They are: Herman L. Moekle, in charge of finance; John R. Davis, in charge of sales and advertising; John S. Bugas, in charge of industrial relations; and Albert J. Browning, in charge of purchasing.

At the same time W. S. James, director of research, was appointed to the staff of Henry Ford II, responsible to the president for all research.

### WAYNE TO SELL PITLIFT JACK

The Wayne Pump Co. of Fort Wayne, Ind., has been granted an exclusive license for the manufacture and sale of the Pitlift Jack. F. S. Harshbarger, manager of the hoist division of Wayne, states that manufacture of the jack will progress as rapidly as conditions permit.

(TURN TO PAGE 190, PLEASE)

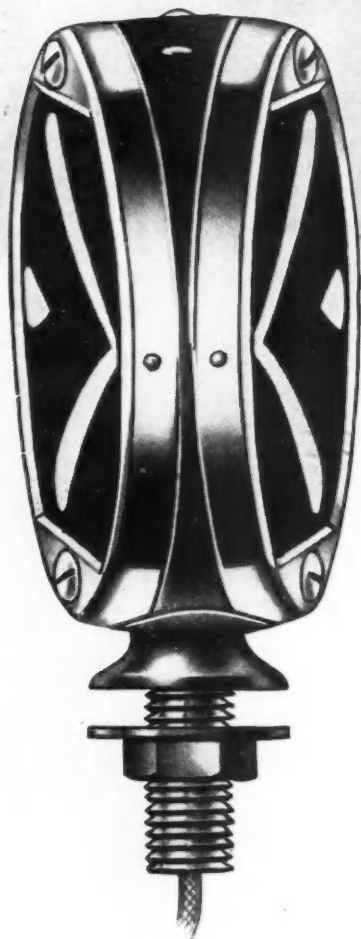
### ● WHO SAID IT?

ANSWER... (To Question on P. 126)

Harvey S. Firestone, who fought vigorously against a British law enacted in 1922, designed to create abnormally high prices for rubber by restricting its production to a point where a demand would exceed the supply. Firestone followed up by starting his own rubber plantation in Liberia.

(Another Cartoon Quiz is on P. 130)

# QUALITY comes first!



UNRESERVEDLY APPROVED BY  
STATES REQUIRING DIRE-  
CTIONAL SIGNALS

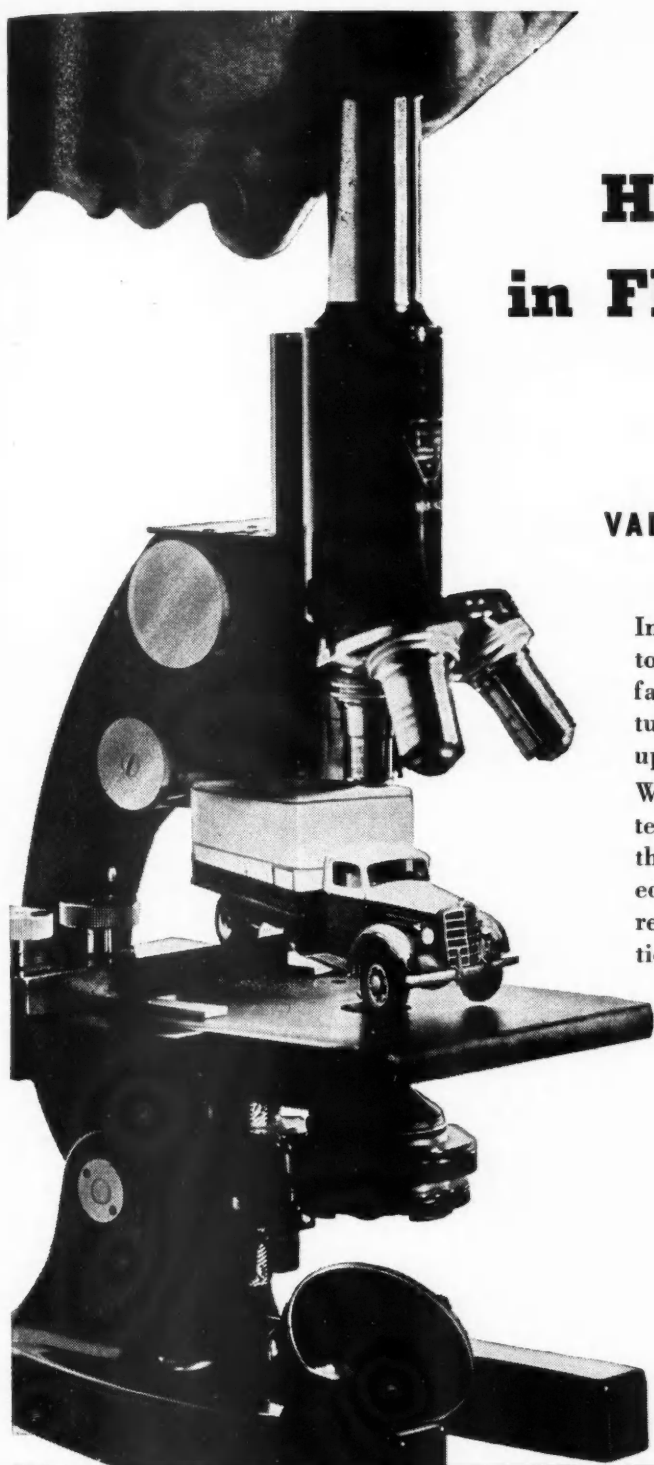
## Teleoptic DIRECTIONAL SIGNALS

TELEOPTIC means everything  
that modern science  
can embody in  
Directional Signals . . .

- ✓ For clear visibility at all angles.
- ✓ For efficiency in severest service.
- ✓ For rugged dependability thru-  
out.

See your jobber or write. Ask about the entire Teleoptic line of  
quality automotive lighting equipment.

**THE TELEOPTIC CO.**  
1245 MOUND AVENUE RACINE, WISCONSIN



## He's finding "Bugs" in Fleet Operations

Hundreds of Fleets Depend on advice  
from

### VALVOLINE FLEET LABORATORY SERVICE

In the shop, it's often difficult—almost impossible—to find the causes of oil and fuel waste or engine parts failures. But under the microscopes and in the test tubes of our laboratory engineers, these "bugs" show up like a sore thumb.

When we make an analysis for you, our laboratory technicians evaluate their findings in the light of their practical operating experience and their knowledge of your particular operating methods. As a result, you get practical, easy-to-follow recommendations for better fleet performance.

### VALVOLINE FLEET CONTROL LABORATORY SERVICE

Ask the Valvoline man how this  
service can be obtained FREE

Wire or write our nearest branch  
**FREEDOM-VALVOLINE OIL COMPANY**  
Dept. 41-F - Freedom, Pa.

New York - Washington - Toronto - Pittsburgh - Atlanta  
Cincinnati - Detroit - Chicago - Los Angeles - Vancouver, B. C.  
Refineries at Butler and Freedom, Pa.



## HEAVY-DUTY FEDERAL DEVELOPS 184 HP.

FEDERAL Motor Truck Co. will soon begin volume production of the Model 65M2, a new heavy duty model truck designed to provide exceptional power, speed, acceleration and operating economy for big tonnage over-the-road operators. It will be larger than any other unit now being built by Federal, and will increase the company's current line of commercial vehicles to twelve models with capacity ratings ranging from two tons up.

A gasoline engine developing 184 hp. at 2600 rpm. and 480 ft. lb. torque at 1200

rpm., powers the new vehicle having gross rating of 30,000 pounds as a truck and 60,000 pounds as a tractor-trailer combination. Basic specifications include a two-speed double reduction rear axle, overdrive transmission, radius rod drive, long flexible springs and a shock resistant extra heavy duty frame. Five wheelbase lengths ranging from 141 in. to 201 in. will be available with conventional or sleeper cabs.

The steering control mechanism as well as the driver's comfort represents a marked improvement over prevailing heavy duty truck design. Steering geometry has been perfected to provide unusual steering ease, eliminating undue driver fatigue.

Power is furnished by 6-cyl. Continental valve-in-head engine of 602-cu. in. displacement, having a bore and stroke of 4 $\frac{1}{8}$  in. and 5 $\frac{3}{8}$  in. This power plant was described in detail in the March issue of COMMERCIAL CAR JOURNAL, page 72.

Special attention has been given to good riding qualities. Both front and rear springs are carefully oil tempered, graded and fitted with nickel-steel heat treated "U" bolts and center bolts. Springs are longer and more flexible than in comparable models and yet are designed to provide ample load carrying capacity.

Starting and stopping thrusts of the rear axle are absorbed by heavy tubular steel radius rods. They relieve the rear springs of strains, allowing them to be designed exclusively for maximum riding performance. Large hardened and ground steel pins and bronze bushings have been specified for the new model unit with rear springs being shackled at each end. The auxiliary springs are of similar design and material. An additional safety factor has been provided by peening the upper surface of the main leaves thus relieving surface tension and reducing breakage.

The heavy front axle is of alloy steel of heat-treated drop forgings throughout having a wide track of 78 in. This permits a short turning radius. Full ball and roller bearing anti-friction steering gears having a ratio of 28.4 to 1, helps to assure the utmost in steering ease, maneuverability,

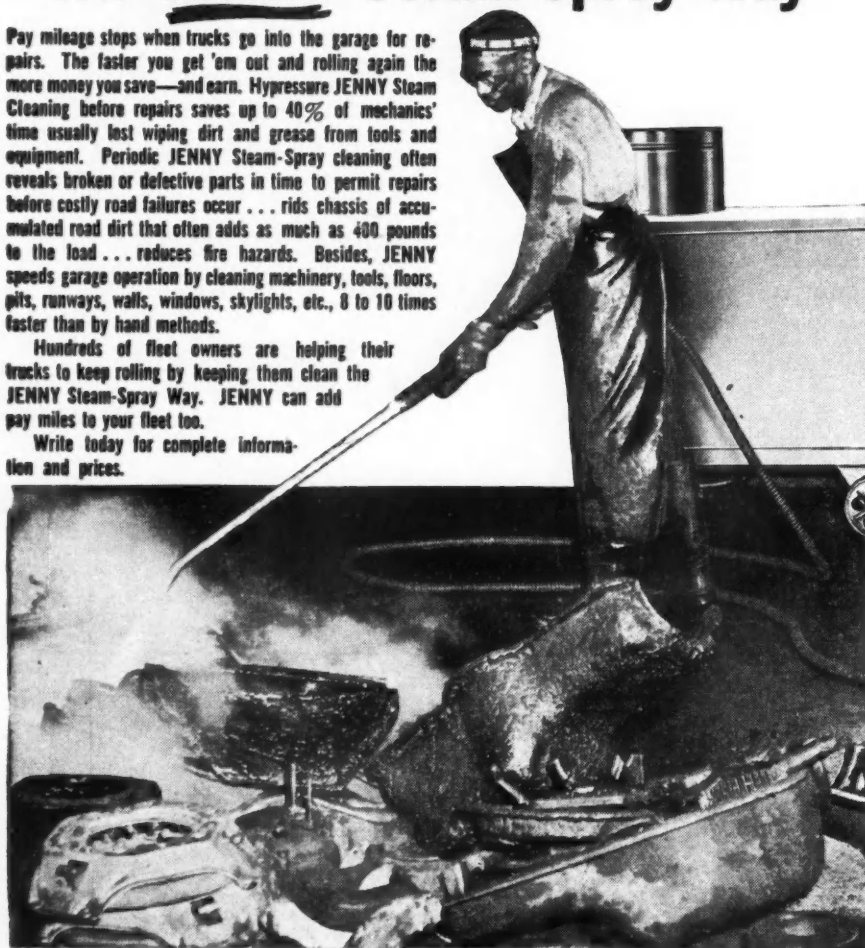
(TURN TO PAGE 132, PLEASE)

## To Keep 'Em Rolling Clean Your Trucks The JENNY Steam-Spray Way

Pay mileage stops when trucks go into the garage for repairs. The faster you get 'em out and rolling again the more money you save—and earn. Hypressure JENNY Steam Cleaning before repairs saves up to 40% of mechanics' time usually lost wiping dirt and grease from tools and equipment. Periodic JENNY Steam-Spray cleaning often reveals broken or defective parts in time to permit repairs before costly road failures occur... rids chassis of accumulated road dirt that often adds as much as 400 pounds to the load... reduces fire hazards. Besides, JENNY speeds garage operation by cleaning machinery, tools, floors, pits, runways, walls, windows, skylights, etc., 8 to 10 times faster than by hand methods.

Hundreds of fleet owners are helping their trucks to keep rolling by keeping them clean the JENNY Steam-Spray Way. JENNY can add pay miles to your fleet too.

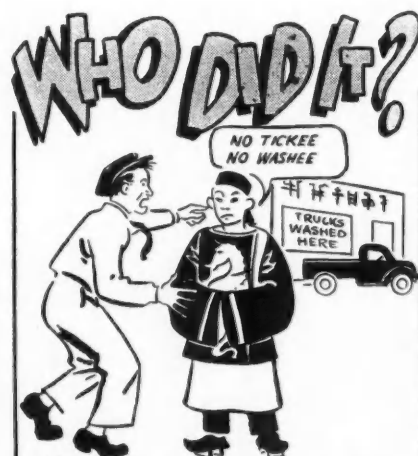
Write today for complete information and prices.



HYPRESSURE JENNY DIVISION OF

**HOMESTEAD VALVE MFG. CO.**

P. O. BOX 90 • • • CORAOPOLIS • • • PENNSYLVANIA



WHICH OF THESE COMPANIES  
PREPARED A COMPLETE  
CHINESE-ENGLISH DIC-  
TIONARY OF TRUCK TERMS?

- ☐ FORD MOTOR CO.
- ☐ GENERAL MOTORS
- ☐ MARMON-HERRINGTON
- ☐ AUTOCAR

(Answer on p. 132)

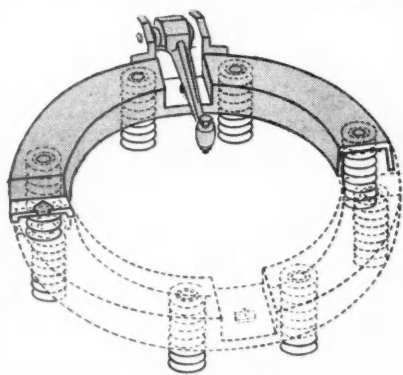


# No FADING of Torque Capacity

- ★ Compensates for Wear of Frictional Material
- ★ Compensates for Fading Pressures of Expanding Springs



## New **LIPE** CONSTANT-CAPACITY Clutch



### Equalizing Ring Balances Spring Pressures

Spring pressures against the toggles is applied by means of a floating ring that equalizes all variations in individual spring tensions and assures a uniform pressure working through each toggle. Because it floats, the equalizing ring serves as an inertia balancer that effectively dampens both cyclical and torsional vibration.

Based on an entirely different application of the toggle-lever principle, the new LIPE Constant-Capacity Clutch is certain to revolutionize current thinking about clutch design, capacity and service. It does not lose torque capacity while there is a reasonable amount of friction material left to hold. The constantly increasing leverage of the toggle—which never goes over center—builds up pressure in almost direct ratio to the losses sustained through dissipation of friction material, loss of friction coefficient in the friction material, and fading spring tension due to expansion and fatigue. The net result is a torque capacity that remains practically constant until the friction material is spent.

### Positive Drive With Soft Engagement

Despite its high pressures and positive drive, the engagement of this clutch is amazingly gentle. This is due (1) to the fact that the initial energy of the springs is partly absorbed by the toggles, and (2) to the fact that the rate of engagement is slowed by the

fading speed of the toggle as it approaches center.

High thermal efficiency is assured by a massive plate, ribbed for faster radiation, and cooled by positively generated air currents.

Now in quantity production. Write for specifications and performance data.



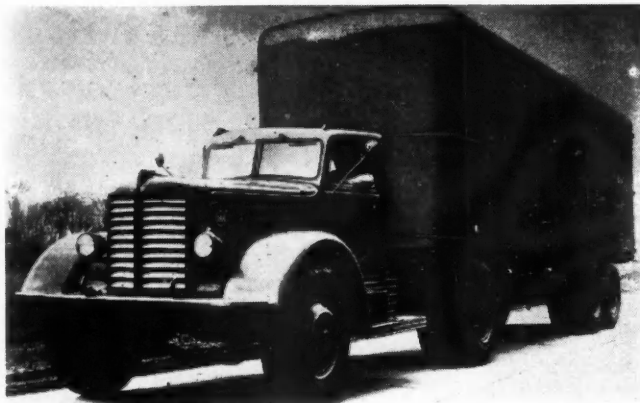
**LiPe-ROLLWAY CORPORATION SYRACUSE 1, N.Y.**

## HEAVY-DUTY FEDERAL

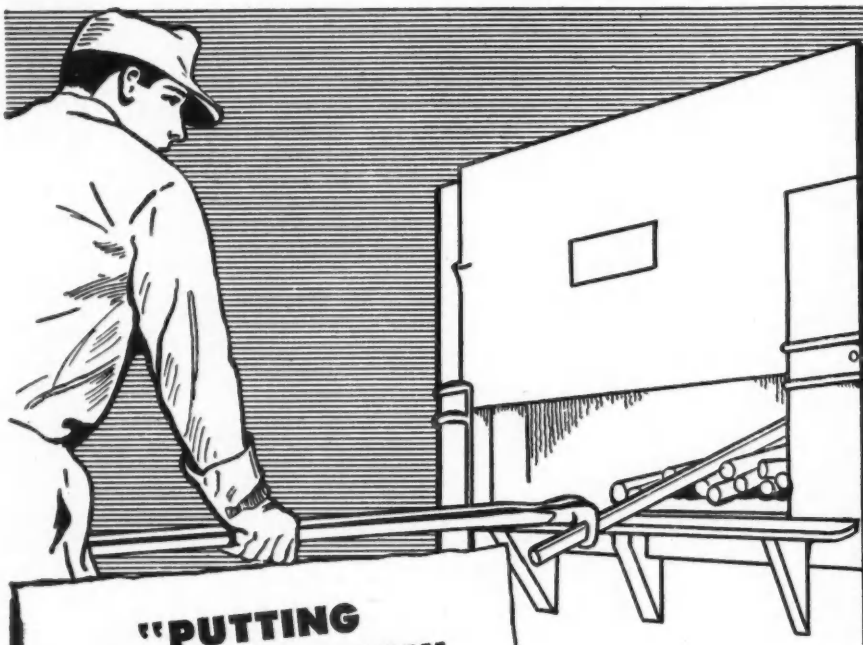
(CONTINUED FROM PAGE 130)

positive control and effortless driving.

Timken's newly developed S-300 series full floating double reduction two-speed rear axle is standard equipment on the new model. Dual ratio 6.53 to 1 in high range and 8.53 to 1 in low range, controlled by an air shift mechanism has been provided. The carrier is removable as a unit to facilitate repairs and adjustments. Both front and rear axles will have a road clearance of approximately eleven in. with 11:00 x 22 tires. Full specifications and details may be obtained on this axle in the December issue of *COMMERCIAL CAR JOURNAL*, page 82.



*Federal's new heavy-duty Model 65M2. It is equipped with a 2-speed axle and is available in five wheel-bases. G.v.w. is 30,000 lb. and gross train rating is 60,000 lb.*



### "PUTTING THE HEAT ON"

The most modern techniques are employed in heat-treating US Axles. It's this important step that makes them so tough and "puts the heat" on axle failures.

Combine proper heat treating with correct design, best alloy steels, accurate machining, rigid inspections, and you get better-than-ever axle replacements. Get US Axles from your Jobber.

Write for Your Copy of the latest Catalog

# US AXLES



US AXLES MANUFACTURED BY US AXLE CO., INC., POTTSTOWN, PA.

The heavy duty transmission has five forward speeds with a .788 overdrive and a first speed ratio of 6.37 to 1. Third, fourth and fifth speed is sustained by wide face helical constant mesh gears. Shifting is accomplished by means of a special jaw clutch design.

#### Standard Equipment

Standard equipment includes a 12-volt electrical system utilizing two 6-volt 19-plate batteries connected in a series, mounted one on each step-plate. The generator which is belt driven, has a capacity of 325 watts and is equipped with a voltage regulator. Sealed beam head lamps with foot dimmer switch, stop and tail lights are provided, as well as an automatic hood light. The under hood light illuminates the oil filler, dip stick and fuse block and is particularly advantageous for night servicing. There are multiple wiring circuits leading to an easily accessible junction block under the hood with a fuse for each circuit, including three spares.

Heavy duty Westinghouse air brakes are standard, operating through a newly developed treadle application valve having oversize air passages for quick application. The unit is equipped with a 12-cu. ft. belt-driven compressor having ample air storage capacity. Front wheels are controllable by limiting valve. This makes it possible to regulate brake application of front wheels on slippery or icy surfaces. The emergency brake is a four-shoe, 16-in. Tru-Stop mounted on the transmission.

#### • WHO DID IT?

ANSWER . . . (To Question on P. 130)

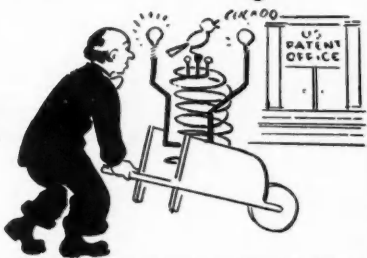
With the thousands of American military trucks in China during the war, an intense need arose for a better understanding of the names of parts. Marmon-Herrington, therefore, in 1944, sponsored a Chinese-English automotive dictionary showing the Chinese terms for truck nomenclature. The book was compiled and edited by Calvin C. Chang.

(Another Cartoon Quiz is on P. 135)

# TRUE OR FALSE?

ONE-FOURTH OF ALL  
PATENTS IN THE U.S.  
PATENT OFFICE RELATE  
TO MOTOR VEHICLES

☐ TRUE ☐ FALSE



(Answer on P. 136)

YANKEE YANKEE YANKEE YANKEE YANKEE



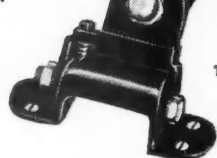
## MIRROR MAGIC?

NO! NOT WHEN YOU KNOW HOW!

NO. 241  
REPLACEMENT  
MIRROR HEAD.  
Made to fit  
the No. 245  
Telescopic  
Adjustable  
Mirror



NO. 245  
TELESCOPIC  
ADJUSTABLE  
MIRROR.  
Adjustable to  
any position.  
For Universal  
mounting on  
Trucks & Buses



Feats of magic always require consummate skill—painstaking attention to details—years of experience.

Making YANKEE Automotive MIRRORS requires the same magical skill—the same perfecting details—born of more than a quarter of a century of experience. It's therefore no mere accident that YANKEE MIRRORS provide high fidelity vision—without tricky illusions—without distortion. No wonder YANKEE MIRRORS have always been the finest in the world—the finest that money can buy!

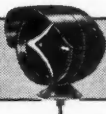
YOU'RE SAFE WHEN YOU CAN SEE  
with



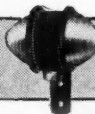
You'll always find them packed in the familiar Red, Yellow and Blue package.



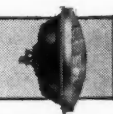
REFLECTORS



DIRECTIONAL SIGNALS



CLEARANCE LAMPS



CONVERSION KITS

ASK YOUR  
JOBBER SALESMAN

YANKEE METAL PRODUCTS CORP., NORWALK, CONNECTICUT, U. S. A.

## OVERCHARGE . . .

(CONTINUED FROM PAGE 41)

during this process—enough to actually push the positive plate terminal strap upward. This, of course, raises the positive side of the cell cover. At the same time, the opposite sides of the positive plates are raised until, finally, they will be pushed up and will short on the negative plate strap. This is what happened to the plate shown in Fig. 3.

By the time the cell covers begin to raise, the battery is in bad condition and will not have very much additional life in it. It may provide some additional life if it is treated carefully and the overcharging condition eliminated.

### Detecting Overcharging

OF COURSE, the overcharging condition should be eliminated before the battery has become so damaged. Watching the vehicle dash ammeter and periodically checking the battery state of charge will quickly tell you if the battery is being overcharged. With a fully charged battery, the battery charging rate should be low. If it is high, the battery is being overcharged.

Another evidence of battery overcharge is excessive water consumption. Thus, if a battery requires considerable water each time the gravity reading is taken, then it is good evidence that the battery is being badly overcharged.

Suppose you find that the charging rate is high even though the battery is in a charged condition. This must be corrected as soon as possible since the battery will not stand up under this type of operation very long.

As a first step in correcting the condition, find out whether the overcharge is being caused by troubles in the generator or regulator, or by temperature.

Normally, as the battery comes up to charge, the voltage regulator begins to cut down the charging rate so that overcharging is prevented. However, if the battery is at high temperature, it will act as though it is only partly charged even though it is in a fully charged condition. The regulator will, therefore, permit the charging rate to remain excessively high.

In order to take care of this battery (TURN TO NEXT PAGE, PLEASE)



## OVERCHARGE . . .

(CONTINUED FROM PAGE 135)

tery peculiarity, many electrical equipment manufacturers usually specify a lower voltage regulator setting when high temperature battery overcharge is experienced. Thus, on Delco-Remy regulators, the voltage setting of the voltage regulator in 6-volt systems may be reduced to 7.1 volts and on 12-volt systems to 14.1 volts. If such voltage reductions are made during hot weather, the voltage

settings should again be increased to the standard specified settings at the onset of cold weather since reduced settings combined with low temperatures may result in run-down batteries.

If overcharge is not due to high temperature, then a simple check may be made to determine whether it is resulting from defects in the generator or in the regulator. With the generator operating at medium speed so that the high charging rate is being obtained, disconnect the lead

from the "F" or FIELD terminal of the regulator. If the output remains high, the trouble is in the generator; if the output drops off, the trouble is in the regulator, probably due to a high voltage setting or to some internal regulator defect such as a short or ground or an open winding.

Thus, if the battery man finds that a battery is requiring excessive water each time he checks it and that it is receiving a high charging rate even though it is fully charged, a little intelligent analysis and possibly some service to the regulator or generator will go far toward allowing the battery to give its full measure of life.

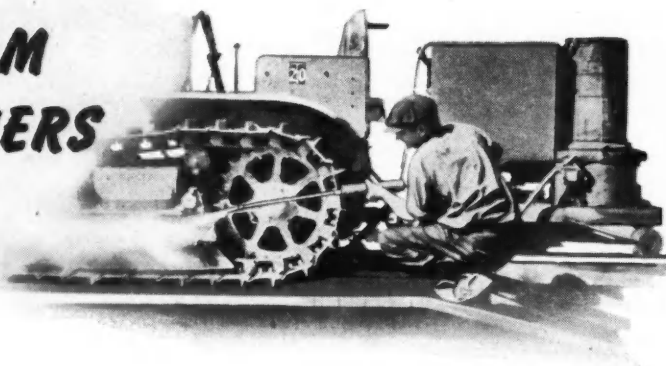
**END**

(Please resume your reading on P. 42)

# TRIAD COMPOUNDS

For

**STEAM  
CLEANERS**



Triad steam cleaner compounds eliminate "limed-up" clogged coils and nozzles which impair the efficiency of steam cleaning equipment of the flash boiler type. Expensive cleaning compounds are not essential.

Water control, so necessary in hard water localities, is built into Triad compounds. Additional water softeners are unnecessary.

Two different Triad cleaners—both 100% water-soluble—are recommended for use with all types of steam cleaning equipment. Triad 66 is for heavy-duty cleaning and paint stripping, while Triad B is specified for light or medium cleaning and for use with non-ferrous metals.

**GUARANTEED PERFORMANCE**—all Triad cleaners are shipped on a guaranteed performance basis for thorough tests.



## ● TRUE OR FALSE?

ANSWER . . . (To Question on P. 135)

True, according to statements by the Automobile Manufacturers' Association.

(Another Cartoon Quiz is on P. 142)

*Extra* **PAYLOAD** · *Extra* **LIFE** · *Extra* **SAFETY**

**WHAT A COMBINATION!**

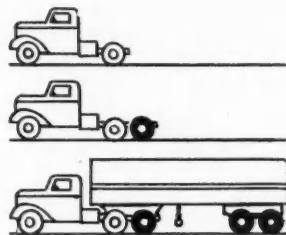
**TRUCKTOR  
THIRD  
AXLES**

***PLUS* The NEW TRUCKTOR  
TANDEM TRAILER AXLES**

**9 Engineered, proven FEATURES of  
Trucktor Tandem Trailer Units**

1. Permanent alignment of axles under all conditions —and for entire life of unit.
2. Rubber-Mounted, Full Floating Springs — independent of braking forces, prevent frame distortion.
3. Rubber-Mounted "Y" Shaped Torque Arm—absorbs braking shock; lengthens tire life; reduces gasoline consumption.
4. Silent Spring Slipper Ends—maintain constant tension, eliminate noise.
5. Spring Slide Block—designed to reduce wear.
6. Springs Mounted Directly Under Trough Type Frame—eliminate outboard bending; permit wider frame; give greater design latitude; lower center of gravity.
7. Six Point Frame Support—distributes load and braces frame.
8. Load Dividing Chain and Sprocket—provides long life and maximum flexibility.
9. Tubular-Cross Shaft—provides month's supply of lubricant.

Start with a 4-wheel tractor. Add a husky Trucktor Third Axle to double its capacity. Then—for the pay-off—hook up to a semi-trailer equipped with the new Trucktor Tandem Trailer Assembly.



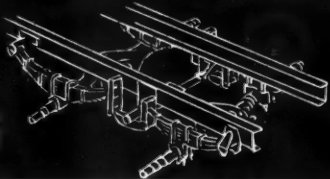
Here is payload plus! This combination shows surprising savings along with the greatly increased payload per vehicle. Tire life is nearly doubled. Insurance rates are, in *most* cases, much lower. Fewer vehicles for a given tonnage hauled mean lower maintenance costs. Fleet fuel costs are reduced. And —many states are considering, or have already granted, higher maximum tonnages for this class of vehicle.

The Trucktor Third Axle increases truck payload as much as 100%. The Trucktor Trailer Assembly does the same for semi-trailer capacity. *Both together* give all the above advantages!

*Complete details furnished. Write*

**THE TRUCKTOR CORPORATION**  
156 WILSON AVE., NEWARK 5, N. J.

**Trucktor  
THIRD AXLES**



**Trucktor  
TRAILER AXLES**



## POSTWAR C.O.E.'s

(CONTINUED FROM PAGE 39)

### Dodge Making Changes

**B**EFORE the war, the output of c.o.e. models by Dodge Truck Div., Chrysler Corp., represented 4 per cent of total production, distributed among the following models and ratings:

WFM — 35 — 37 — 38 — 13,500 g.v.w.

WHM — 45 — 47 — 48 — 15,000 g.v.w.

WFMA — 35 — 37 — 38 — 14,000 g.v.w.

WHMA — 45 — 47 — 48 — 48 — 16,000 g.v.w.

Although the same setup of models and ratings will be continued for 1947 production, Dodge is making some interesting changes. For one thing, there will be an improvement in maintenance by providing more accessibility for mechanical inspection under the cab. Too, there will be provision for driver comfort, ease of steering, and improved engine

performance. A detailed statement of exactly what will be done is given below:

"Cab seat improved by use of better upholstery and better pads. The seat cushion will be air bound, with a solid steel panel on the bottom which traps the air which would ordinarily be displaced under heavy impacts on the cushion thus preventing the cushion from bottoming. The volume of the air trapped can be controlled by a manually-operated valve in the panel.

"Serviceability of the distributor and engine is improved by a readily removable floor board on the left side of the cab.

"Performance is improved by use of spark plug covers which prevent dirt and moisture collecting around the plugs; this, together with better wiring, improves starting.

"Steering is made easier by use of a larger capacity steering gear in which the ratio is changed from 17 to 1 to 23.2 to 1, also improved steering linkage."

### Chevrolet's 1947 Line

**A**CCORDING to the Chevrolet Central Office, division of General Motors Corp., the prewar Chevrolet line included c.o.e. models built in three wheelbases having a rating of 13,500 lb. g.v.w. and nominally classified as 1½-ton trucks. A similar line of c.o.e.'s will be available

(TURN TO PAGE 142, PLEASE)

*Get your copy*

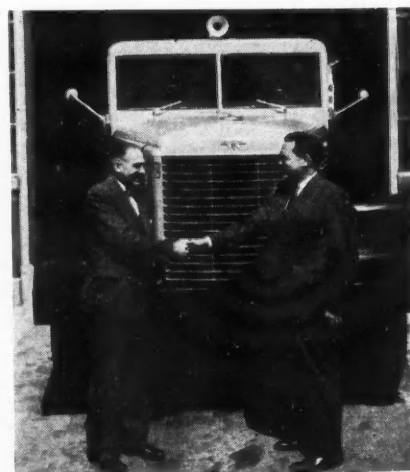
**OF THE NEW WAYNE AIR COMPRESSOR CATALOG**

**Wayne**

*backed by a performance*  
**GUARANTEE**  
AND NATION-WIDE SERVICE

It's more than a catalog... it's a handbook filled with useful information and shows the complete Wayne line.

**THE WAYNE PUMP COMPANY FORT WAYNE 4, INDIANA**



The first International heavy-duty "Western" model rolls off the assembly line at International Harvester's new Emeryville, Cal., Works. R. M. Buzard, western district manager (right), is shown congratulating works manager A. W. Engstrom

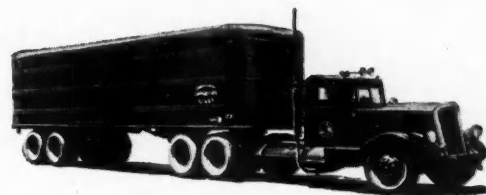


# Because it is the **ONE** Belt Specially Engineered For **TRUCKS** and **BUSES!**

## Are YOU Still Using PASSENGER CAR BELTS on YOUR Trucks or Buses?

You would certainly never even think of using passenger car TIRES on your trucks or buses. Then why use passenger car BELTS?

You realize, the moment you think of it, that trucks and buses put a heavier load on belts just exactly as they do on tires.



Isn't it natural, then, that a passenger car belt on a truck can not possibly give you anything like the long, trouble-free service given by the belt that is specially engineered for trucks and buses--the Gates Truck Belt?

Look at the cross-section drawing of the Gates Truck Belt on the preceding page. Note the special cord section, the 30% stronger cords, the stronger, tougher, multiple-ply cover of more than *double* durability. Is it any wonder the biggest users of truck belts in the U. S. have found that this Gates Truck Belt gives them 50% to 80% longer wear?

Even more important--note in the statements of these experienced and practical operators, how much valuable operating time they are saving through fewer

road failures and fewer delays for servicing.

Surely it is just as important to you as to them to keep your trucks and buses operating most efficiently and economically. If this is true, the wisest move you can make is to call your jobber right now and tell him to send you a trial order of Gates TRUCK Belts.

**Gates Jobbers Now Have  
Stocks to Serve You**

**THE GATES RUBBER COMPANY**

DENVER, U. S. A.

World's Largest Makers of V-Belts



THE MARK OF SPECIALIZED RESEARCH

T 464

**MANY  
MORE  
MILES**

### GENEVA, N. Y.

"... many more miles of service than even pre-war belts."  
Market Basket Corp.

**WEARS  
75%  
LONGER**

### NASHVILLE, Tenn.

"... gives about 75% longer wear than any other belt we ever used."  
Wilson Truck Co., Inc.

**CUTS  
SERVICE  
DELAYS**

### OAKLAND, Calif.

"We are getting fully 75% longer wear with corresponding reduction in servicing time and belt adjustment delays."  
Carnation Milk Co.

**50%  
LONGER  
SERVICE**

### DES MOINES, Ia.

"... is giving about 50% longer service over even pre-war belts."  
Iowa Road Building Co.

**50%  
TO 60%  
MORE  
SERVICE**

### JARREL, Tex.

"... giving 50% to 60% more service--far the best we've used."  
Jarrel Motor Co.

**80%  
TO 100%  
BETTER**

### KANSAS CITY, Mo.

"Gates Truck Belts are doing an 80% to 100% better job for us."  
Adams Transfer and Storage.

## POSTWAR C.O.E.'s

(CONTINUED FROM PAGE 138)

for 1947 production but the details and specifications of these will not be available until after manufacturing operations have been resumed.

### Ford's 1947 Line

FORD MOTOR CO. produced the following c.o.e. models before the war:

\*101-in. WM—C.O.E. Chassis with Cab—13,500 g.v.w.

\*134-in. WM—C.O.E. Chassis with Cab—13,500 g.v.w.

\*158-in. WB—C.O.E. Chassis with Cab—13,500 g.v.w.

\*15,000 g.v.w. with 2-speed axle and 8.25x20 10-ply dual rear tires.

Ford intends to include c.o.e. models in the 1947 truck line but has no specific data to offer now.

Neither the Nash Motors Div., Nash-Kelvinator Corp., nor Willys-Overland Motors, Inc., contemplates production of c.o.e. models in current program, although it is of interest

that Willys built a c.o.e. panel delivery vehicle just before the war.

Ward LaFrance Truck Div., Great American Industries, Inc., express themselves as being fully aware of the importance of c.o.e. models in a balanced line of heavy duty vehicles and intend to have something to offer when their current problems are out of the way. However, under present conditions the company says definitely that no c.o.e.'s will be available during 1946, owing to the pent-up demand for their regular line.

### Walter Continues Line

WALTER Motor Truck Co., well-known producers of heavy-duty tractor-trucks and snow fighters, will continue the manufacture of its standard line of models which remain the same as heretofore, the setup being as follows:

FZM—24,000 g.v.w.

FC—32,000 g.v.w.

FBG—32,000 g.v.w.

FGR—42,000 g.v.w.

AGV—70,000 g.v.w.—off highway.

AWV—70,000 g.v.w.—off highway.

AWU—42,000 g.v.w.

(TURN TO PAGE 144, PLEASE)

*Central Mike Says:*  
**"EVERY MECHANIC NEEDS THESE 2 SETS!"**

**CENTRAL**  
*Certified Accuracy*  
**MICROMETERS**

**SET NO. 808** →  
Inside Micrometers  
Range 1½ to 8 inches.  
**\$12.00**  
Complete with Extension Handle and DeLuxe Plush-Lined Case

**SET NO. 745 RL** →  
Outside Micrometers  
Range 0 to 4 inches.  
**\$46.50**  
Complete with Ratchet Stops, Lock Nuts, Standard Test Gauges and DeLuxe Hinged Plush-Lined Case

WRITE TODAY FOR CATALOG NO. 17  
The entire line of individual micrometers and complete sets illustrated and fully described.

**CENTRAL**  
FOR MORE THAN A QUARTER CENTURY SPECIALISTS IN FINE MICROMETERS  
CERTIFIED ACCURACY

**THE CENTRAL TOOL CO., AUBURN, RHODE ISLAND**

**WHO IS IT?**



CAN YOU NAME THE SENATOR WHO IS CHAIRMAN OF THE SENATE INTERSTATE COMMERCE COMMITTEE?

☐ SEN. BURTON K. WHEELER  
☐ SEN. JOS. GUFFEY  
☐ SEN. ROBERT A. TAFT  
☐ SEN. BEAUREGARD CLAGHORN

(Answer on P. 144)

# **Your Wagner Jobber** **handles everything needed for servicing** **hydraulic brake systems of any car or truck** ***ALL from One Source\****



## ★ **WAGNER LOCKHEED** **HYDRAULIC BRAKE REPAIR KITS**

There's no need for you to go to one jobber for hydraulic brake parts, to another jobber for brake fluid, and to a third for brake lining. There's a Wagner jobber near you who handles all three, thus saving you time and furnishing you with materials of the highest quality.

He handles Wagner Lockheed Hydraulic Brake Parts in kits and completely assembled cylinders, or individual parts.

## ★ **WAGNER BRAKE SERVICE** **TOOLS and EQUIPMENT**

To round out his service to you, your Wagner jobber also supplies brake service tools and equipment for your shop and station needs. Look to him for such items as the Wagner Bleeder Tank, Automatic Refiller, Cylinder Clamps, No-Go Gauges, Brake Cylinder Hones, Honing Stand, and other time- and labor-saving items to be used in rendering hydraulic brake service.



EVERY REPAIRMAN needs these two Wagner Catalogs. Catalog HU-122 gives information on Wagner Lockheed hydraulic brake parts and fluid. Catalog BU-128 covers Wagner CoMaX brake lining.

**Do YOUR part to check accidents. Co-operate with Chiefs-of-Police Brake-Check Campaign. Check brakes of every vehicle in your fleet.**  
**Wagner Electric Corporation, 6470 Plymouth Ave., St. Louis 14, Mo.**

**LOCKHEED HYDRAULIC BRAKE PARTS and**  
**FLUID • NoRoL • CoMaX BRAKE LINING**



## ★ **WAGNER CoMaX** **BRAKE LINING**

It pays to standardize on CoMaX. This popular line provides *complete* coverage for all passenger cars, trucks, buses, and for industrial brakes.

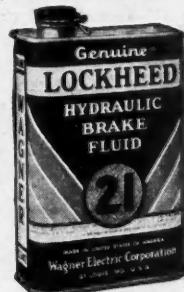
CoMaX is unsurpassed for quick, safe, smooth stops. It has exceptionally long-wearing qualities, is uniform in texture, is noncompressible, ageproof, and is easy on drums.

Available in rolls, sets, blocks, and slabs.

## ★ **WAGNER LOCKHEED No. 21** **HYDRAULIC BRAKE FLUID**

Then, too, he handles No. 21 Brake Fluid, the best known, highest quality, most extensively advertised brake fluid on the market.

No. 21 is an *all-season* fluid for *all* hydraulic brake systems. It retains its highly efficient qualities under all driving conditions. It completely and properly mixes with all other approved fluids, furnishes necessary lubrication for working parts of the hydraulic brake system, and, in general, preserves the essential characteristics of the entire system.



**AIR BRAKES • TACHOGRAPHS • INDUSTRIAL**  
**BRAKES • ELECTRIC MOTORS • TRANSFORMERS**

# **Wagner WE Electric**



## POSTWAR C.O.E.'s

(CONTINUED FROM PAGE 142)

However, these models have higher output engines and are designed for higher average road speed operation than before.

Marmon - Herrington Co., Inc., draws attention to the fact that they have never built c.o.e. models in their regular line of specialized heavy duty vehicles. The only c.o.e. jobs built

by them are the Ford conversions to the M-H All-Wheel-Drive.

### Confidential Data

THIS brings us to the reports from the group of producers who provided information as to their future plans but asked us to keep the returns confidential owing to the uncertainty of their program under current operating conditions. This stand is quite reasonable considering the wave of strikes within the indus-

try and among the suppliers of raw materials and parts, all of which combined to retard new vehicle designs and completely upset production planning.

A complete digest of the reports submitted by this group will be found in Table 1. While it would have been of much more value if the names of manufacturers could have been used, nevertheless, Table 1 is useful in gaging the trend of thinking and planning, gives the fleetman some pretty tangible evidence on which to base his future buying program.

Let us consider some of these returns. Here is manufacturer "A," whose volume of c.o.e. represented 40 per cent of his total output and who intends to continue substantially the same setup of models. Manufacturer "B," on the other hand, whose c.o.e.'s represented 10 per cent of his output, with 14 models, may not produce any c.o.e.'s this year. Manufacturer "J" who did not build c.o.e. before the war evidently has plans to get into the swim in 1947.

It is of interest to find that producers "F," "K," and "L" plan to increase the g.v.w. ratings of their line for 1947. In the case of "F" the maximum rating of 25,000 lb. will be extended to 28,000 lb.; "K" is going to 36,000 lb.; while "L" will stretch the coverage from 1½-ton to 5-ton, whereas the prewar maximum was a 3-ton model.

Equally noteworthy are comments which give the clue to improvements in the offing. Consider, for example, the boost in driver comfort, easier maintenance, and special features to be offered by "A." Significantly the same kind of features are being emphasized in the reports from "F" and "K." Manufacturer "G" considers his job to be perfectly adequate with respect to the other items but will offer bigger engines for 1947.

Company "N," one of the prominent producers in the field, with two to three per cent of prewar volume represented by c.o.e.'s, advises that

(TURN TO PAGE 146, PLEASE)


THESE

*Miley Features*

MEAN

**LOW COST**

*Brake Operation*



THE L. J. MILEY CO., INC.

1060 WEST ADAMS STREET

CHICAGO 7, ILL.

**1** Miley "Black Gold" brake linings are guaranteed NOT TO SCORE brake drums—their safe, quick-acting, soft pedal action remains CONSTANT.

**2** Miley is the only brake lining manufacturer today making a complete line of brake shoes for all popular cars plus all of Ford, Chevrolet, some G.M.C. and Dodge models of trucks.

Miley is a name to remember for SAFETY, low cost operation and long mileage. Guaranteed NOT to score drums.

Write to Dept. C.

**Plants in Chicago and N. Manchester, Indiana**

### ● WHO IS IT?

ANSWER... (To Question on P. 142)

Senator Burton K. Wheeler,  
Democrat, of Montana.

*IT'S NEW  
IT'S QUICK  
IT'S EASY!*

Guaranteed to develop and withstand pressures in excess of 60,000 pounds.



ADJUSTABLE PRESSURE PLATE, UNDER PRESSURE, DEMOUNTING TIRE

**\$295** net

F.O.B. PAWTUCKET, R. I.

*Immediate Delivery  
Money Back Guarantee*

Order NOW from any authorized distributor or

**LEE**

**ENGINEERING COMPANY**  
PAWTUCKET • • RHODE ISLAND

**PRESTO HYDRAULIC DEMOUNTER** the greatest labor saving demounter of them all. Demounts sizes from 7.00 — 15 to 24.00 — 24 without damage to tire, tube, wheel or rim. No tire too small, too large, or too tough. It's small, light, portable . . . all-steel construction. High pressure double acting hydraulic cylinder and pump. Demounter adjustable for all size tires. *The seemingly impossible made easy with PRESTO!* **ALL PARTS CARRY A ONE-YEAR GUARANTEE**

LEE ENGINEERING COMPANY • PAWTUCKET, R. I.

Send complete information on the new Presto Model B Demounter.

NAME.....

STREET AND NO.....

CITY.....ZONE.....STATE.....

C

## POSTWAR C.O.E.'s

(CONTINUED FROM PAGE 144)

because of the small demand before the war and the urgent need for maximum production of conventional models in the near future, the manufacture of c.o.e. models has been discontinued temporarily. This company is unable to say when production will be resumed.

## What Fleetmen May Expect

**L**OOKING behind the scenes, it is possible to gather a pretty good picture of what fleetmen may expect in the near future. It is clear that some companies are going to great lengths to improve driver comfort along the following lines:

1. By improving the suspension of the entire vehicle.
2. By improving the cab suspension.

3. By the adoption of more comfortable seats.

4. By making controls more accessible.

5. By making the steering easier. In addition, some of them intend to give the driver real shirt-sleeve comfort no matter what the outside temperature is. This comes from the development of cab heating and ventilating systems which give a nice, even compartment temperature in winter without frosting or clouding of windshield or side windows, despite rain or snow or sleet. In summer, the same system gives pressure air circulation that should make things quite comfortable. We have seen the details of several systems of this kind in recent weeks.

Obviously, engineers have not been satisfied with the accessibility of powerplants. Many companies are taking steps to improve accessibility for inspection and for maintenance operations, thus promising to reduce operating costs.

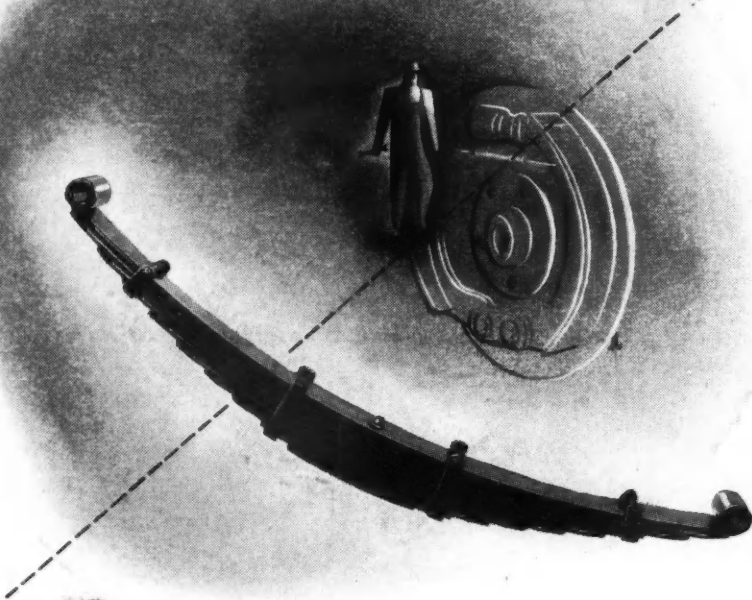
Finally the c.o.e.'s will profit by the advancement in conventional models expected in the near future. Prominent among such features will be the adoption of higher output engines aiming at faster acceleration and higher road speeds. Too, you can expect lines with greater g.v.w. ratings and a wider selection of wheelbase.

Whether or not these improvements will increase the demand for c.o.e.'s is something for fleetmen to decide. But in any event, fleetmen can look forward to equipment with superior mechanical features and an entirely new concept of comfort for the driver.

**END**

(Please resume your reading on P. 40)

## You Check Your Brakes . . .



## ...but who checks your SPRINGS?

### BRANCHES:

**ATLANTA 3, Ga.,**  
William and Harvey  
Rowland, Inc., 449  
Marietta St., N. W.  
**BIRMINGHAM 3,**  
Ala., Birmingham  
Spring Service, Inc.,  
2017 Avenue B, South  
**CHICAGO 16, Ill.,**  
William and Harvey  
Rowland, Inc., 2732  
Indiana Avenue  
**JACKSONVILLE 4,**  
Fla., Jacksonville  
Spring & Alignment  
Co., 137 Jefferson St.  
**PHILADELPHIA 30,**  
Pa., William and  
Harvey Rowland, Inc.,  
1414 Fairmount Ave.  
**PITTSBURGH 13, Pa.,**  
Point Spring Co., 419  
Melwood Street

Here's a positive, definite way to cut spring costs—proved by many fleet operators. *Put your vehicles on a regular program of spring inspection.* Be sure to have this work done in a qualified shop—by a Rowland Spring Distributor. Knowing springs—how to make them deliver a full lifetime of service, what to look for that might cause premature failure and how to prevent serious trouble—is the business of Rowland Spring Distributors—and they're good at it. They have a wealth of practical experience gained over the years in working on thousands of trucks and buses. Use your nearby Rowland Spring Distributor for SPRING, muffler, universal joint and wheel suspension service. Wm. & Harvey Rowland, Inc., Frankford, Philadelphia 24, Pa.

# ROWLAND SPRINGS



**SPRINGS • MUFFLERS  
• UNIVERSAL JOINTS •  
WHEEL SUSPENSION PARTS**



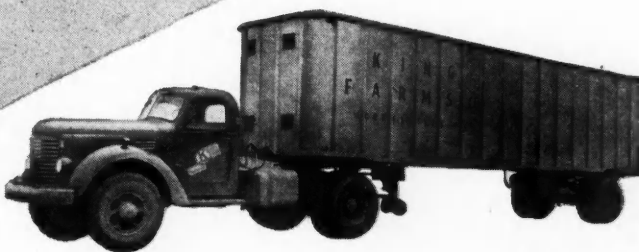
Production of Chevrolet trucks, rapidly being increased to meet the vital needs of users of commercial vehicles, is under way in plants of the Chevrolet motor division, General Motors Corp. This is the last step on one of the assembly lines, with two workers making a final inspection while a third puts water in the radiator.



# with Rayon Cord

Charles E. Williams, Superintendent of Equipment, King Farms Company, Morrisville, Pa., maintains over 100 vehicles at this large farm. He reports:

"We find rayon cord gives us 25 per cent greater mileage in operating our fleet over a million miles a year. Our experience with rayon over a period of six years has also shown increased safety with heavy loads, and better recapability."



## HERE ARE THE REASONS WHY

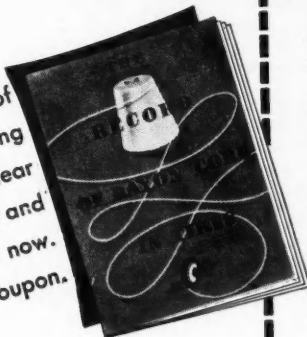
Science shows that rayon's molecular structure and physical uniformity, combined with its greater strength, permit a cooler running tire. At the same time, rayon retains its tensile strength better when running temperatures get high. This means fewer blowouts, bruises, cuts . . . principal tire maintenance problems. But it

particularly means better mileage . . . and better condition of carcasses for recapping. No wonder so many bus and truck companies everywhere report fewer road delays with rayon . . . and higher speeds with greater loads more safely hauled.

## AMERICAN VISCOSE CORPORATION

*America's largest producer of rayon*  
 Offices: 350 Fifth Avenue, New York 1; Charlotte; Cleveland;  
 Philadelphia; Providence; Washington; Wilmington.

Our free booklet, "The Record of Rayon in Tires," gives dozens of interesting facts about rayon cord that make clear its importance in tires of today and tomorrow. Order your copy now. Just clip and fill in the coupon.



AMERICAN VISCOSE CORPORATION  
 350 Fifth Avenue, New York 1, N. Y.

CC-6

Gentlemen:

Please forward a copy of "The Record of Rayon in Tires."

Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## REBUILD-TEST STAND SPEEDS OVERHAULS

(CONTINUED FROM PAGE 51)

### Builds Portable Engine Stand

**A**BOUT two years ago, April, 1944, William Kuehling, our chief engine mechanic, built a substantial portable engine stand to speed up and facilitate the various phases of engine overhauling. The engine stand frame is made from angle iron—scrap material picked up around the

garage. All joints are welded. Mr. Kuehling built the unit in approximately 24 hours, total labor time. It is on mounted rollers and can be moved easily to any point desired.

As the accompanying pictures show, the workman can perform every part of the job quickly, easily, and more efficiently. For example, the mechanic first places the engine in position on the stand with a chain hoist. One end of the chain hooks into a heavy screw-eye put temporarily in top center of engine block

for this purpose. When mounted in proper position, the block is held in place in the frame by a bolt at each end, near the top. The mechanic can then turn the engine to any desired position. It operates on a swivel. A crank is used to turn the engine into the position he wants for the various operations.

He grinds the valves and assembles them with the block in an upright position. Next, he turns the block on its side to install pistons and rings, then turns it upside down to install bearings, crankshaft, oil pump and pan. Then he turns block back with valves up, and installs head and manifold. Heads are refaced in the meantime, in order to make a tight contact with the gasket.

But let me explain here, before the head is assembled, the mechanic cleans the water jacket thoroughly to remove all scale, and puts in new soft plugs to avoid future trouble on the road. The cleaning job is done by dipping the entire unit into a cleaner tank of 220 gal. of cleaning solvent. The chain hoist is used for easy handling. He uses an air hose in the solvent to agitate it. This method cleans the block inside and out in about three hours. Then he washes unit with hose and water. This method saves the difference between three hours now required for cleaning, and a full day the old way.

### Converts to Break-in Stand

**A**FTER the engine is assembled, it is painted dark gray. Next, the mechanic installs a radiator on front end of the stand (using only four bolts), and an instrument board on the other end. He then starts the engine running on the stand.

This stand also serves as a block-tester. After running the engine 18 to 20 hours, it is checked for compression. The carburetor is adjusted with a gasoline analyzer, and the governor is set (with a tachometer) to turn over 2600 r.p.m.

After the final block-testing job is okay, the engine is mounted on a dolly and kept in stock until it is needed. Thus, the engine does not require any breaking-in on the road.

The advantages gained by this method are many, but the big factors are fewer premature breakdowns on the road, due to fast driv-

(TURN TO PAGE 152, PLEASE)

## FOR FORDS

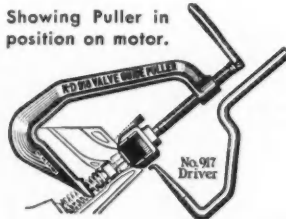
Special K-D Valve Service Tools for Fords take the headaches out of many really tough jobs, turn service dollars fast for you.

There are tools to service every Ford-built motor from the model T to date. See them at your jobber's. If you haven't received a copy of the new Service Manual "How to Service Valves in Ford-Built Motors," send for a copy—it's free.

# K-D TOOLS

K-D MANUFACTURING COMPANY  
Lancaster, Pa. and Hamilton, Ontario

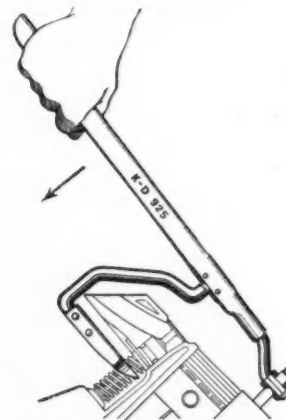
Showing Puller in position on motor.



K-D 920 Valve Guide Puller Set removes valve assemblies no matter how tightly stuck. For Ford V-8, Mercury, Lincoln, Ford 4, 6 and Tractor. No. 917 Driver for removing keepers, No. 918 Puller to pull assemblies. Correct mechanical principle, never fails.



K-D 245 Bar-type Valve Spring Lifter. A strong, double life tool of chrome vanadium steel. To be used only for replacing assemblies in Ford V-8 and Mercury motors. 30" long, jaws alike at each end.

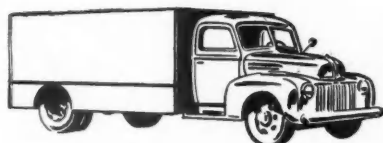


K-D 925 Valve Assembly Replacing Tool is essential for replacing assemblies on motors having no "heel" for a bar—Lincoln-Zephyr, Ford 4, 6, and Tractor. Not to be used for removing. Strong channel construction with adjustable length handle. 21" long.

**QUESTION . . .**  
**WHICH IS WORTH MORE TO**  
**AN AIRLINE OPERATOR?**

1 AN OUNCE OF GOLD ☐

2 A POUND OF MAGNESIUM ☐



You can put  
 your checkmark  
 on No. 2 right  
 now, because—

Payload is the pay-off in the airline operator's business. A pound of dead weight saved means a pound of payload added and, in a year's time, that's worth \$100 per plane to him\*. An ounce of gold is worth only \$35.

Lightweight American Magnesium products are helping accomplish this payload boosting weight saving in airliners.

### Freight Is Also Your Payload

Reducing the dead weight of a truck lets you safely increase the amount of freight it can carry. More payload means a higher pay-off. American Magnesium products have been proved a safe way of achieving this weight saving.

Our engineers will gladly assist your body builder in reducing the over-all weight of his equipment. Aluminum Company of America, Sales Agent for American Magnesium Products, 1719 Gulf Building, Pittsburgh 19, Pennsylvania.

*\*Average saving estimated by 4 leading U. S. airlines*

MAGNESIUM



PRODUCTS

**AMERICAN MAGNESIUM**  
**CORPORATION**

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA



## REBUILD-TEST STAND SPEEDS OVERHAULS

(CONTINUED FROM PAGE 150)

ing during the breaking-in period, and improved driver relations.

We keep this plan flexible. For example, any one of the rebuilds can be shipped out to the point of breakdown, or, rather, nearest garage where it is waiting for installation. Or, we can install it in some other

unit ready for overhauling here in our main terminal, where all major overhauling is done.

Under this extra-engine program, no tractor or truck is laid up for a period of more than 24 hours labor time. In other words, in that interim, the engine is changed, transmission and rear-end assembly overhauled, and the units ready for the route within 24 hours. Extra transmissions and rear ends also are carried in stock for quick use.

## Road Failures Cut 65%

**WE AIM** to keep three extra engines on hand for one type of truck, three extras for another, and one extra engine for each of two other models, or an average total of eight. This keeps the fleet running with a minimum of idle time per unit, and eliminated about 65 per cent of the mechanical troubles that caused road failures before this plan was adopted; the present ones are mostly of a minor nature, and we can send a mechanic out to repair them on the spot. Should there be a major breakdown, the unit is towed into the garage here for repairs.

Here's another thing we do which has helped a lot to reduce engine maintenance costs. Under the old method, if a valve grinding job appeared necessary, we would do it right in the truck rather than pull the engine out. The percentage of road failures under that plan, however, was high. We found that other trouble soon developed, and it would be only a short time until we had to pull the engine anyway. Now, we find it pays to pull it out in the first place and rebuild it completely. This job, greatly facilitated by the engine stand, includes overhauling generator, starter, distributor, governor, installing new main and rod bearings, new wrist-pins, new rings or a reboring job with new oversize pistons and rings, and to grind the crankshaft if necessary.

As this method makes everything just like new, we find that it puts from 125,000 to 130,000 new miles back into the engine. In fact, we can say that our blocks, after 130,000 miles will show only about .0025 in. taper and crankshafts approximately .0015 in. wear.

This result, which means the elimination of approximately one major overhaul between the present average of 130,000 miles, has been possible also from the care each motor is given during its life. One thing, for example, we use an additive detergent in the oil, continually during the life of the engine, and crankcase oil is changed at regular intervals of 2000 miles; filter cartridges are changed at same time. We seldom have trouble with sticky rings or hydraulic valve lifters on engines.

Besides the major overhauling, we have a separate department for minor  
(TURN TO PAGE 154, PLEASE)



### it's not the peals... but the WHEELS that COUNT!

With ignition products, too, it's what's inside that makes better electrical and tune-up jobs.

Concentrating only the finest materials, plus skilled workmanship and precision manufacturing makes the P&D ONE complete quality line of starting, lighting, ignition replacement parts and coils the best one you can handle. With P&D you simplify inventory, speed work and satisfy customers.



**HIDDEN REASONS FOR SUPERIOR PERFORMANCE OF P&D CONDENSERS**

- Remains hermetically sealed under any and all sudden or slow temperature changes.
- Functions instantaneously unhampered by any inductance or series resistance. Result, maximum contact point life and spark energy.
- Absorbs no power, minimum heat and dielectric losses. Result, maximum efficiency in coil primary to secondary energy transfer.
- Capacitance engineered for optimum functional balance to field service demands. Result, maximum efficiency in operation of coil primary.
- Constructed and designed for maximum resistance to dielectric (insulation) fatigue and failure under any and all field service conditions. Result, trouble-free performance.
- Built to resist structural failure from any type of vibration. Result, assured freedom from mechanical failure.





## MANUFACTURING COMPANY, INC.

LONG ISLAND CITY, NEW YORK

STARTING • LIGHTING • IGNITION • REPLACEMENT PARTS

P & D MANUFACTURES ONLY ONE COMPLETE QUALITY LINE. ONLY THE FINEST MATERIALS AND WORKMANSHIP OBTAINABLE ARE EMPLOYED



# *Why Play Blindman's Buff*

**...when you need  
parts for these vehicles?**

Don't grope in the dark when you need parts for these vehicles—use *MoPar* factory engineered and inspected parts. They are designed by the engineers who designed the vehicles, and are made to the same exacting specifications as the parts originally installed at the factory. *MoPar* Parts build customer good will.

## NOTE TO ALL REPAIR SHOPS

If you need parts of any kind for a Plymouth, Dodge, De Soto, or Chrysler, obtain them from a dealer for these vehicles. For Dodge truck parts, see a Dodge dealer.

*Plymouth*

**DODGE**

*DeSoto*

**CHRYSLER**

**DODGE *Job-Rated* TRUCKS**



**Check Your Driving—Check Your Car—  
Check Accidents. Cooperate with Police  
Traffic Safety Check, May 15 to June 30.**

**CHRYSLER CORPORATION—PARTS DIVISION, DETROIT 31, MICHIGAN**



## REBUILD-TEST STAND SPEEDS OVERHAULS

(CONTINUED FROM PAGE 152)

repairing and engine tune-ups. Here is one phase of this service that is profitable. When a unit comes in from a trip, the mechanic listens to the driver's story, and fixes up whatever minor trouble is reported. While the truck is there, he checks the carburetor, ignition, clutch pedal and even adjusts brakes if necessary.

### Check-Out Station

**A**NOTHER example of extra checking, which saves money by locating possible trouble before it happens, is having the loaded trailers driven through the check-out station in the main garage building. Here all tires are inspected for pressure, exterior injuries, brakes lined up and thoroughly inspected before the unit goes out on the road. Oil levels and water are checked. Lights, route certificates, fire extinguishers, flashlight,

flares, and similar items are checked. Special care is taken to check bad tires on trailers, and to adjust slack in brakes. While these major items were checked in the yard while truck was being loaded, they are checked again, as indicated above, when they come through.

If these double-checks appear to be too super duper, we can only answer that it pays in the elimination of road failures. Since adopting this double-check inspection program, an appreciable increase in tire mileage alone, approximately 30 per cent has resulted on our long-distance hauling units.

### Blackboard Records Lubes

**A**NOTHER phase of economical service operations, is a large blackboard mounted on the wall in our greasing department for recording all crankcase oil changes and added oil. This method serves for monthly check-ups and for permanent records. Take for example, truck No. 237, listed on top row. We see at a glance how much oil this unit used during the month, and how much on a crankcase change. The chart shows we used a total of 12 quarts, including one oil change on this unit, and up to the third of October of the next month, one quart was added.

This board enables us to keep an accurate check-up on amount of oil each truck uses, then we transfer these records to permanent sheets which can be used for data for case history of each unit later.

These checks are incentives to service men to keep engines properly serviced with oil. When oil consumption goes up too high, the engine is scheduled promptly for an overhaul. The last column on the board shows the number of quarts used in previous month, and the one with the highest total is the first to be rebuilt.

### Employ Standard PM

**W**E EMPLOY and follow a standard PM schedule.

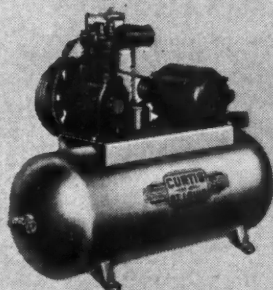
When inspections show the need of repainting, we send it into the paint shop. Regardless of age, the unit is given four coats. We figure that well-painted trucks get more favorable attention, and that it is good advertising well worth the cost, as

(TURN TO PAGE 157, PLEASE)

# CURTIS

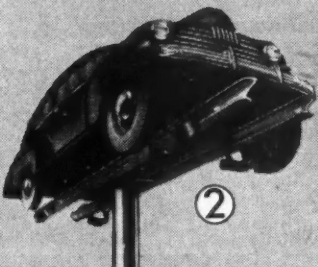
**A FAMOUS  
NAME in  
Automotive  
Service Equipment**

①



#### 1. CURTIS AIR COMPRESSORS

Timken Bearing Equipped  
Self-Oiling  
Positive Unloaded Start  
Automatic Electric-Welded Tank

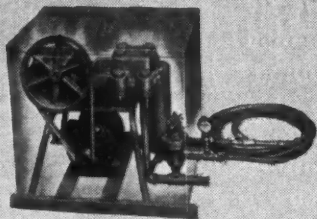


②

#### 2. CURTIS AUTO LIFTS

Full Hydraulic  
Safety Oil-Lock Valve  
Lowering Speed Controlled by  
Retard Valve  
Correctly Designed and  
Engineered

③



#### 3. CURTIS HYDRAULIC CAR WASHERS

Two Cylinder — Double Acting  
Brass Lined Cylinders  
Self-Oiling  
Timken Bearing Equipped

Write for Bulletin C-6.

## CURTIS PNEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Company

1970 Kienlen Avenue

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92 YEARS OF SUCCESSFUL MANUFACTURING EXPERIENCE

CURTIS PNEUMATIC MACHINERY DIVISION of Curtis Manufacturing Co.

CDE-494

1970 Kienlen Avenue, St. Louis 20, Missouri

• Please send me complete information on Curtis Air Compressors, Auto Lifts, and Car Washers.

Name.....  
Firm.....  
Address.....  
City..... Zone..... State.....



## REBUILD-TEST STAND SPEEDS OVERHAULS

(CONTINUED FROM PAGE 154)

well as adds life to the truck. We use the spray method.

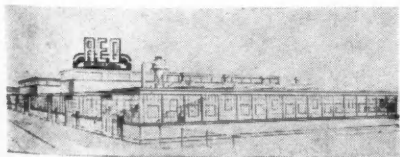
We have a special lighting arrangement in the paint shop. For example, there are eight 300-watt explosion-proof lamps in reflectors, spaced properly around the paint shop to focus the lights on the job to eliminate shadows on all sides. Jim Peterson is foreman of this department.

While a complete stock of fan belts, gaskets, rings, pistons and bearings, in fact everything necessary to rebuild engines, is carried in that department, major equipment such as drill presses, an arbor press, a forge and battery charging unit, along with stocks of relined brake shoes, is located on same end of building, with a driving entrance between.

### Large Stock Carried

THE main stock room, however, is located well in the central section of main building, and occupies two floors. Here large stocks of truck and general supplies are carried, and in charge of Waldo A. DeLand, formerly a captain on the Great Lakes Freight lines, for some 45 years. Captain DeLand keeps a card index file for every item, of which there are thousands—lamp bulbs from the smallest size to 1000 watt units—lanterns, colored globes, welding and burning outfits, soap and so on. Large supplies of fire extinguishers are checked frequently. This was never done before except by drivers.

There are mechanical jacks from 10 to 20 tons capacity, and hydraulic loading jacks from 100 to 150 tons, besides rigging and erecting equipment for the heavy-type moving trucks. Captain DeLand keeps a perpetual inventory, and when any item is taken out of stock for use, or loaned to some one in the organization, it is charged to the individual or department, and credited back to



The new manufacturing and assembly plant of Reo Motor Co. of Canada, Ltd., in the Toronto area

stock, if and when it is returned. At any time an item is low, the purchasing agent is informed so that he can replace it. This method has saved delays in getting things we need, and eliminates losses that otherwise cannot help but creep in.

The general policy of our maintenance program is to carry recommended loads. We think the savings on tires will compensate for certain higher payloads when you do overload, but, in any event, as soon as you start to overload, you strain your

engine, your running gears and everything. That is inevitable.

We have one particular run hauling cement from Sandusky. We always check our oil and gasoline on this run, and we find that our heavier tractors use the same—26 gallons of gasoline, the same as the lighter tractors and they do the job much easier. The lighter ones can do the job, but are laboring all the time—the heavier ones are on "vacation."

END

(Please resume your reading on P. 52)

## He found the Answer ...



The jeers of skeptical spectators quickly turned to cheers as Robert Fulton's Clermont, nicknamed "Fulton's Folly," proudly steamed up the Hudson on her 32-hour maiden trip to Albany.

Profiting by the failures of eight other inventors, Fulton, in 1807, had found the answer to the problem of steam propulsion for boats, making steam navigation practical for the first time.



You will find the answer to your Fuel Pump and Carburetor Repair Problems in  
**HYGRADE REPLACEMENT PARTS IN CONTAIN-ALL KITS**

The up-to-date way of handling these vitally important branches of repair—at a handsome profit to yourself.

**OTHER HYGRADE PRODUCTS**  
SPEEDOMETER PARTS "SHOCK" PARTS  
FUEL LINES AND FITTINGS

From your jobber

**HYGRADE PRODUCTS CO., INC.**

35-35 Thirty-fifth St., Long Island City 1, N. Y.

Carburetor and Fuel Pump Parts  
by **HYGRADE**  
ENGINEERED FOR OLD UNITS

*Hygrade line*  
AUTOMOTIVE PRODUCTS

## LUBE BOARD . . . CENTER OF MAINTENANCE

(CONTINUED FROM PAGE 55)

due for the job. A typical entry would be, "Change oil every 1500 miles at 69,874" or Drain Trans. and Diff. every 15,000 miles at 98,467."

Below the Service Operations card is the truck's individual Gas-Oil-Miles Record card, which covers a 13-week period. Columns are provided for a record of odometer

reading, gas intake, oil intake, and oil drained.

These two cards always remain on the board, except the Service Operations card (Fig. 2) which is removed if a truck leaves our Los Angeles shop for any length of time, and placed in a rack in the cab of the truck. It then becomes the driver's responsibility to keep check on when the truck is due for its next lubrication job, according to the Service Operations card. The card is returned to the lube board when the truck

comes home at the end of the run.

At the end of the day, when the entries have been taken from the master Gas-Oil-Miles card kept at the gas pump and transferred to the proper individual trucks' Gas-Oil-Miles Record cards on the lube board, the lubrication man checks the odometer reading of the truck, as shown on the truck's Gas-Oil-Miles card, against the Service Operations card entries showing the odometer reading at which the next job becomes due.

### Center of PM Program

THE lube board, thus tipping us off when the next lubrication job becomes due, forms the nerve center of our maintenance program, as we tie in our three major inspections with the regular lubrication.

At 1500 miles we do the lubrication job, change the oil and give the truck a general inspection. At 3000 miles we again perform the 1500-mile procedure and, in addition, do a motor tune-up. At 15,000 miles, both the 1500- and 3000-mile services are repeated, plus a large scale overhaul job including such work as removal of wheels, repacking, and change of oil in transmission and differential. This means that in every 15,000 miles one of our trucks travels, our lube board tips us off as to the proper time for five motor tune-ups and 10 lubrications and inspections.

It is the responsibility of all specialists to check the board every day. The lube man, as has been explained, can tell when the truck is ready for its regular 1500-mile lubrication. The motor man can tell, by looking at the oil consumption as shown on the individual Gas-Oil-Miles Record card, when a truck is consuming too many quarts of oil and, consequently, should have an engine overhaul.

A great time saver is the fact that all of the specialists—motor tune-up man, brake man, motor rebuilding, tire, chassis and body men—in making their daily checks, can approximate the number of trucks due for each of the three major inspections and, therefore, plan their work accordingly, and have the proper equipment and parts on hand. This is essential as we do all of our own maintenance work, except for repainting and recapping.

(TURN TO PAGE 160, PLEASE)



The Trade  
Mark of  
QUALITY

\_\_\_\_\_ body builders  
\_\_\_\_\_ operators  
\_\_\_\_\_ designers

# "Cleveland"

## STAKE RACK

### CONNECTIONS

are SOLID DROP FORGINGS FROM OPEN HEARTH STEEL . . . every unit tested to guarantee security and strength.

**FOR SIDE RACKS**



**LIGHT PATTERN**  
No. 2585B  
Stock  
 $2\frac{1}{2} \times \frac{1}{8}$

**HEAVY PATTERN**  
No. 2586B  
 $3 \times \frac{1}{8}$

**FOR END GATE**



**LIGHT PATTERN**  
To apply outside of racks  
No. 2591B  
Stock  
 $2\frac{1}{2} \times \frac{1}{8}$

**HEAVY PATTERN**  
To apply outside of racks  
No. 2592  
 $3 \times \frac{1}{8}$

A set consists of two pairs (opposite hands) which is enough for one complete end gate. Cut shows right hand.

SEND FOR CATALOG 228

## The Cleveland Hardware & Forging Co.

Established 1881

3264 East 79th St.
Cleveland 4, Ohio

**FOR *UTMOST* RELIABILITY  
IN THE  
HEART OF THE  
FUEL SYSTEM**

AVAILABLE FROM THE  
AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in*, from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

**FOR REPLACEMENT**—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

**FOR REPAIRS**—use AC Diaphragm or Parts Kits.

#### QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer patented-impregnation diaphragms of special airplane cloth.
- Carefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

**AC  
FUEL  
PUMPS**

#### SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Division, G. M. Corporation  
910 Matt Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

- |  |  |
|--|--|
| <input type="checkbox"/> How to Service Spark Plugs                    | <input type="checkbox"/> HOW TO SERVICE FUEL PUMPS   |
| <input type="checkbox"/> How to Service Spark Plug Cleaner             | <input type="checkbox"/> How to Service Air Cleaners |
| <input type="checkbox"/> How to Service Oil Filters                    | <input type="checkbox"/> How to Service Speedometers |
| <input type="checkbox"/> How to Service Ammeters and other Instruments | CCJ-6  |

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_



## LUBE BOARD . . . CENTER OF MAINTENANCE

(CONTINUED FROM PAGE 158)

### Few Minutes' Work Daily

ON THE surface, the job of keeping the lube board up to date appears to be an enormous task but, actually, it is not, for every vehicle does not necessarily stop in at the garage every day. Thus, what would seem to be a tremendous bookkeeping job is only a few minutes' work a day.

The lube man is responsible for keeping the data current, and for keeping tabs on the figures showing when a truck is due for a lube job. He makes his notations at the end of each day, putting on the board the information accumulated during the day by the gas man.

We made the board but purchased the tin racks from a local tinsmith.

A metal plate is used for the Service Operations card principally because it is more durable. As explained, these cards occasionally

stand rough treatment, as they are removed from the lube board and placed in the cab of the truck whenever the truck leaves the Los Angeles shop's jurisdiction for any length of time.

To take care of any trouble that develops while a truck is out of the garage, we have a Motor Car Report (Fig. 3) which the driver files at the end of his run. This report, however, is not placed on the lube board to be picked up by the motor man on his daily check of the board, but is put on a separate board directly in the motor repair department. We have found that putting any additional forms on the lube board would clutter it to the point of affecting its simplicity. These Motor Car Reports must be followed through every day and the job completed, if possible, by the next day so that no time is lost in laid-up trucks.

Our tire man keeps a separate set of records.

### Provides Long-Range Check

IN ADDITION to the daily check which the lube board gives us on the status of our fleet, it also affords a long-range check. Each 13 weeks, the Gas-Oil-Miles Record cards are replaced with new ones. The completed ones, when removed from the board, are sent to the office for tabulation on a Thirteen-Week Report sheet.

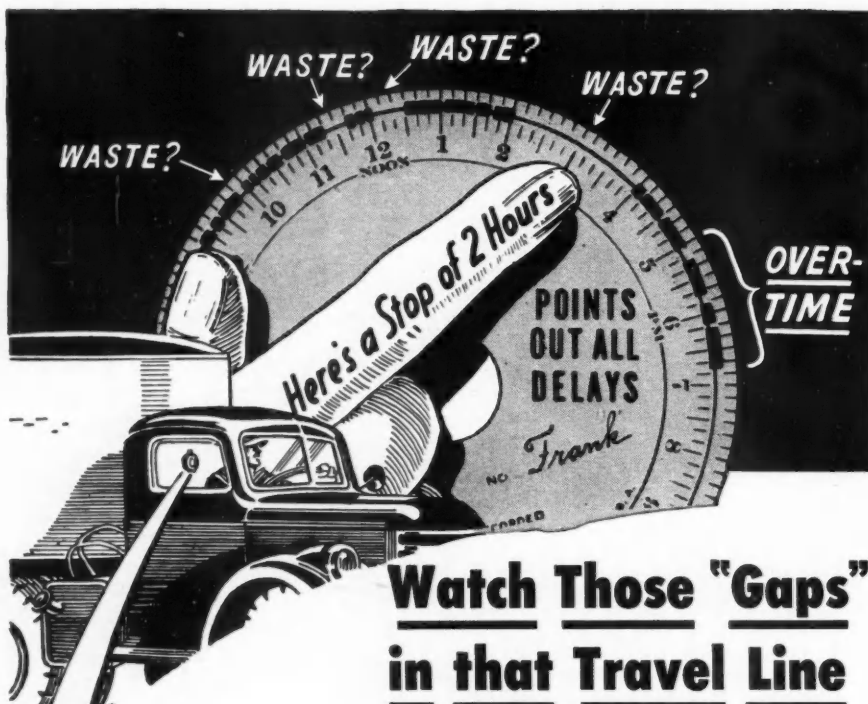
This report lists the total consumption per vehicle of gasoline and oil; the total oil drained out of the motor; and the total mileage of the truck for the period. Each of these columns is then added to give a grand total for the fleet of miles traveled, gallons of gas consumed, quarts of oil used, and quarts of oil drained. The average miles per gallon, and miles per quart of oil for the fleet is tabulated and these figures are used as a control for performance records of individual trucks.

This report also shows the average cost of fuel for the fleet and the actual cost for each unit. Our trucks use about 500 gal. a day, averaging eight miles per gallon.

Our 10 years' experience with the lube board has assured regularity of maintenance procedure, and has given us a good check on our fleet.

END

(Please resume your reading on P. 56)



## Watch Those "Gaps" in that Travel Line

This Is No Time for a Truck to Stand Idle—Even for Only Short Periods

LOOK at the Servis Recorder chart above—note those "gaps" in the travel line, marked WASTE. Each one shows up idle time—the truck wasn't running then. Were these delays justified, unavoidable—or—was someone to blame? In either event, they may have caused that expensive OVER-TIME (bracketed on the chart). Naturally, you want to know.

Well, the first thing you ought to know is whether your truck is losing valuable time now and then on its routes during the day. (And how those idle moments at odd times do add up!)

The only accurate way to keep tab on all those delays, even down to 10-minute periods, is to attach a little SERVIS RECORDER; then the truck automatically acts as its own Time-Keeper! Write for full information. THE SERVICE RECORDER COMPANY, 1375 Euclid Avenue, Cleveland 15, Ohio.

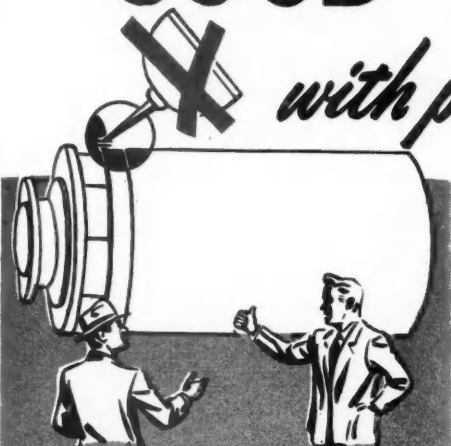


## The Servis Recorder

Shows Busy and Idle Time... All Day

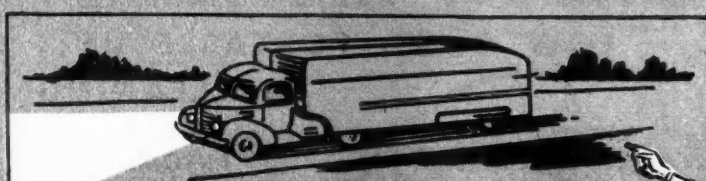
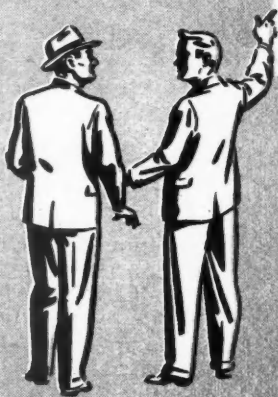
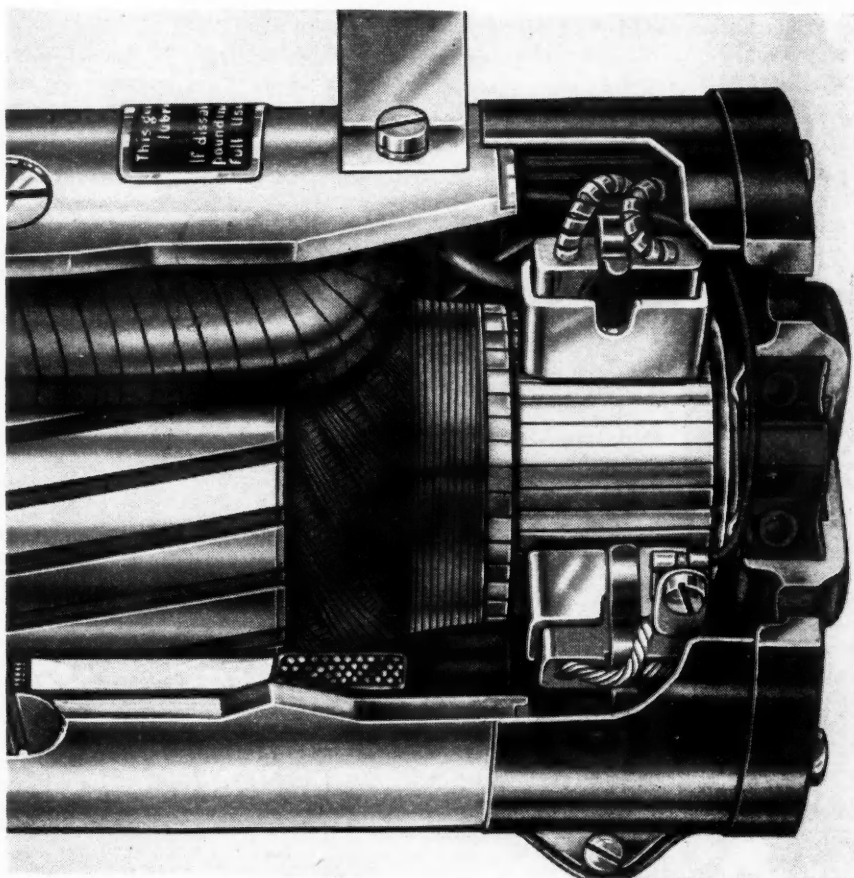
# GOOD GENERATORS

*with permanently lubricated bearings*

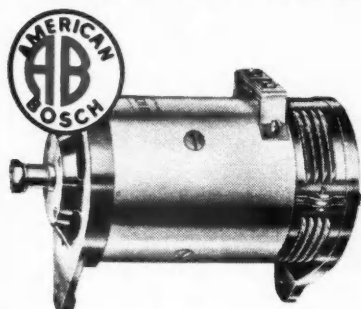


That gives one less maintenance job plus constant protection.

**THIS GENERATOR NEVER NEEDS OILING.** Why? Because the bearings are packed with a special high-temperature-resisting lubricant which needs replacing only at overhaul periods.



**ELECTRICAL LOADS ON GENERATORS CONTINUALLY INCREASE.** More marker lights, two-way radio communication, heaters and fans, electric wipers and defrosters all add electrical load to the generator's job. Generators built to stand the extremes of heavy duty service, like the American Bosch Volt-O-Matic, can "take it".



AMERICAN BOSCH CORPORATION, SPRINGFIELD 7, MASS.

## AMERICAN BOSCH

### *Volt-o-matic Generators*



## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED FROM PAGE 49)

of the structure, in a walled-off space, 48 ft. x 96 ft. Paralleling that of a first-class fleet maintenance shop, its equipment includes late-type power tools and testing devices for practically all usual—and many less-common—automotive reconditioning operations.

As an integrated part of the school's

learn-to-do-by-doing policy, teen-age trainees are taught, under competent supervision, the proper use and care of tools. And they learn to make "trouble tests" and to disassemble and reassemble the various units in vehicles of varied types. As parts are removed, they are cleaned up, inspected and, if necessary, replaced with new.

Not long ago, the writer followed a second-year class through a complete engine overhaul. The engine was removed from the chassis, swung

onto a stand and disassembled. Carbon was cleaned out, valves and seats were reconditioned, and new pistons, rings and bearings fitted. During the different phases of the work, the students were taught the practical use of various testing apparatus and power tool items.

Included in the equipment employed were an electrically-operated valve refacer and a reseater, a torque wrench, and all the precision testing devices for checking the job, at each step. Among them were compression, vacuum, cylinder dial, valve seat and feeler gages, micrometers and a connecting rod aligner.

In addition, the school has wheel balancing and front-end aligning apparatus, a cylinder honer, a pin hole grinder, motor analyzing and distributor checking equipment, a 6-ft. lathe and a hydraulic hoist.

Besides major apparatus items, an exceedingly well-arranged tool room contains all the small tools ordinarily needed for any repair or overhaul job on passenger cars and light trucks.

The sides of this room mount a continuous tool board, on which the place for each item is plainly indicated. First, the tool itself was outlined on the board with pencil. The outline then was filled in with black paint. Not even the "greenest" student can miss finding the right location for each tool.

However, the trainees take turns in serving as tool keeper. Tools are issued on a simple check system, and must be returned *clean and in good condition*, at the end of each school session.

### Shop and Classroom

STUDENT instruction is divided into two classifications: 1. Shop Practice and 2. Related Subjects. The latter consists of classroom work, closely tied in with what the student learns in the shop. Among the subjects covered are English, mathematics, mechanical drawing, blueprint reading and science. The teaching of these subjects has been streamlined to exclude everything, except what the trainee actually needs to know in connection with the trade he is learning.

In English, he learns shop phraseology—how to spell and use correctly, commonly-employed shop terms

(TURN TO PAGE 164, PLEASE)

*Save COSTLY MAN HOURS! Speed REPAIR WORK!*  
*Equip FOR SERVICE! Equip TO*  
**CLEAN with STEAM**  
**SIEBRING**  
**STEAM CLEANER**

**OPERATES Economically!**  
Burns low cost commercial fuel oil or gas! Electric units also available!

**Makes QUICK WORK of Tough Cleaning Jobs! Cuts Grease and Grime in a Hurry!**  
A big asset in any repair shop or service station! A time and money-saver. **ALSO A MONEY-MAKER!** The Siebring PORTABLE Steam Cleaner provides instant steam, hot water or a combination of the two **UNDER PRESSURE** for fast cleaning on the toughest grease and dirt packed jobs. First it knocks loose, then it dissolves and quickly removes hardest packed dirt, grease and grime. Penetrates crevices and corners. Does a **BETTER** job in **HALF THE TIME!**

**Operates Independent of city water pressure or electricity!**

**Easily moved about!**

**LOW COST, PORTABLE UNIT for CLEANING**

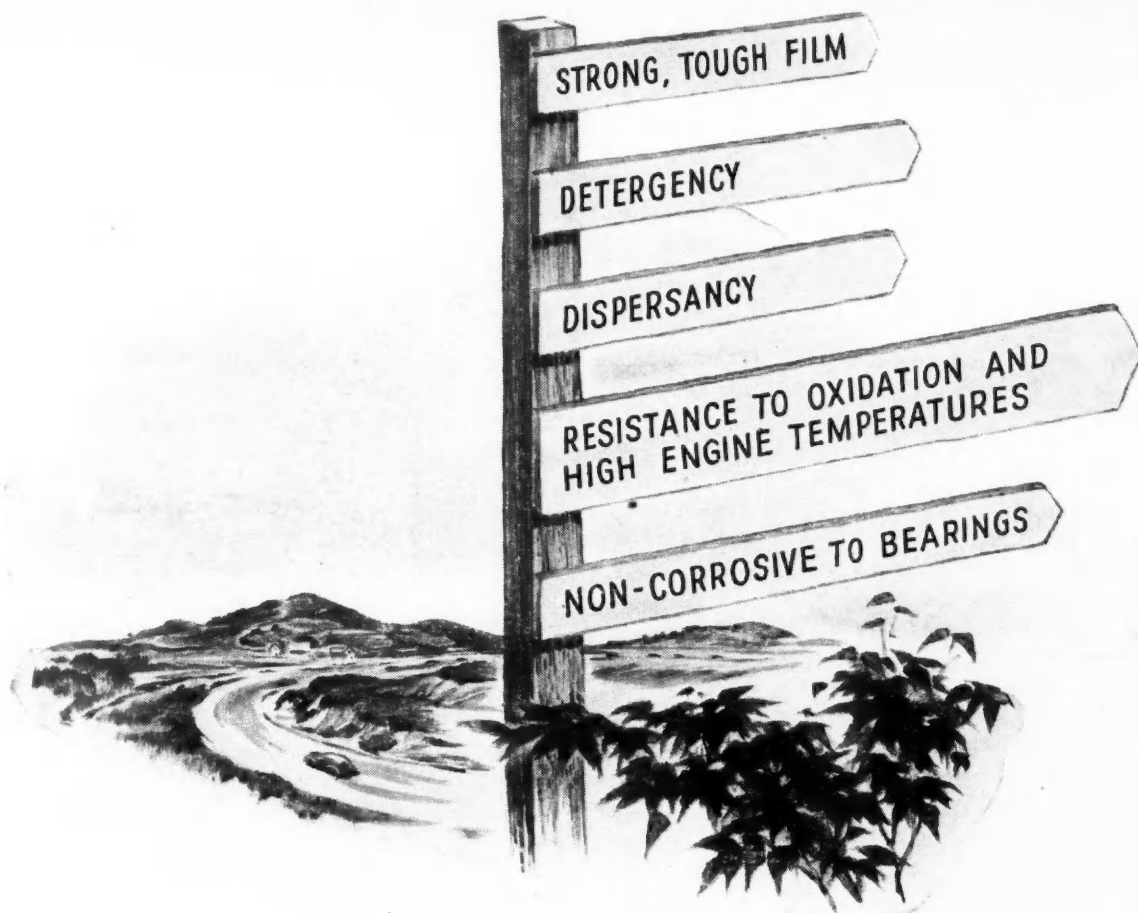
- and WASHING AUTOMOBILES
- AUTO MOTORS
- MOTOR PARTS
- TRUCKS
- TRACTORS
- and OTHER TOUGH JOBS!

**10-DAY Free TRIAL OFFER!**

**YOU RISK NOTHING! . . .** Let us put this remarkable automatic steam cleaner in your shop for 10 DAYS' FREE TRIAL. See for yourself how simple it is to operate; how economical, safe and service free! Write for descriptive literature and details of our 10 Day "Free Trial" offer.

**SIEBRING MANUFACTURING COMPANY**  
**501 MAIN ST., GEORGE, IOWA**





## FOLLOW ALL FIVE FOR *Heavy Duty*

Follow the lead of fleet operators the country over. Choose Wolf's Head Heavy Duty for tough runs and heavy duty service.

In Wolf's Head Heavy Duty you get *all five* essential heavy duty factors, properly developed . . . in the correct proportion and balance . . . to give you lower upkeep, fewer lay-ups for repairs and longer engine life.

Find out what top quality, "finest of the fine" Wolf's Head Heavy Duty can do for your units and for your operations. Write us for your copy of the free heavy duty folder. Wolf's Head Oil Refining Co., Inc., Oil City, Pa., New York 10, N. Y.

**LABORATORY CONTROL SERVICE:**—gives fleet operators specific recommendations for their units, based on analysis of crankcase oil. Helps to establish correct drain periods, conserve engine life, reduce lay-ups—frequently reveals unsuspected engine troubles. Free and without obligation.

# WOLF'S HEAD

## MOTOR OIL AND LUBES

100% Pennsylvania



P.G.C.O.A. Permit No. 6

## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED ON PAGE 162)

and to write a simple, clear-cut business letter. Mathematics includes the shop application of geometry and arithmetic. The coverage in mechanical drawing is far from a complete course but enough is taught to enable the student to express a mechanical idea by means of an easily understandable sketch. Science confines it-

self pretty well to basic principles, such as those of internal combustion powering and automotive electricity.

Combined with classroom instruction is a "visual aid" program. This consists of motion pictures and projected "stills". Some of the material shown is the property of the school, while some is borrowed. For example, the writer saw a film loaned by a tool manufacturer. The subject covered was the correct use of the more commonly employed shop tools—hammers of different types, cold

chisels, hack saws, metal drills and the like. The school has a small but well-equipped theater for the showing of instructional films and slides.

Classes alternate, spending one-half the school day in the shop and the other half in the classroom.

### Trainees Carefully Screened

**T**O BE eligible for vocational training, the prospective student must be at least 15 years old (cut back, at the outbreak of the war, from 16) and must have completed the 9th grammar grade or its equivalent. Prospective trainees are carefully screened to determine their probable fitness for the vocation they want to learn. If accepted, they undergo a three-weeks' probationary period in their chosen course before being permanently enrolled in it.

A course, in any trade taught, runs for either a two-year or a three-year enrollment. The former, if satisfactorily completed, entitles the trainee to a Trade Certificate. The longer course qualifies him for a high school diploma. During his third year, he may gain wider shop-practice experience in his elected course, supplemented by advanced classroom work. Or, as an alternative, he may take instruction in a trade associated with the one he has been learning.

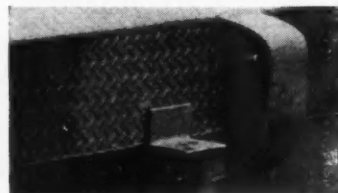
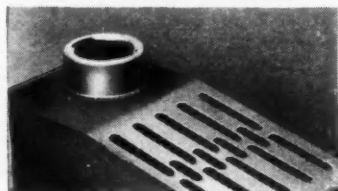
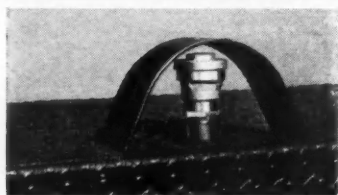
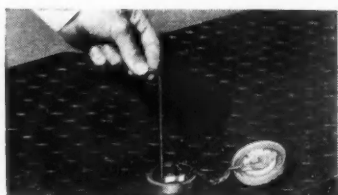
Among offered courses of this kind are machine shop, electric generator and motor maintenance and repair, diesel engine servicing and acetylene welding.

The automotive course trainee, whose objective is a Trade Certificate, and whose grades are sufficiently good, may, at the beginning of his fourth semester (half year), take up training in an "associated" trade. He may, for example, enroll for instruction in machine shop work or for electric generator repair. The latter course, in its earlier coverage, majors on automotive generator testing and reconditioning. Credit for the work in an extra subject will be noted on the student's Trade Certificate.

### Subjects in Automotive Course

**W**ORKING schedules have been carefully planned. First year automotive subjects, in the order of their introduction, include: Shop layout, tools and equipment; wheels, rims and tires; front axles; springs, shock absorbers and wheel suspen-

(TURN TO PAGE 166, PLEASE)



## features

### THE ORIGINAL SADDLE SAFETY TANK

Carefully scrutinize the features of the M-H-S Saddle Tank and you'll be completely convinced of its superiority!

Purchasers get 10 gauge metal instead of 12 gauge, *Vented Safety Pressure Caps, Measuring Sticks in Filler Tubes, Rugged Leakage and Explosion Prevention Valves, Theft-proof pockets, Welded Shields to protect gas lines, Rigid All-Welded Construction with "baffles" to retard "slopping" and aeration, Pickled Steel to resist corrosion and other features illustrated and described in our literature. Write for it!*

Manufactured by  
**MECHANICAL HANDLING SYSTEMS, INC.**  
Detroit, Mich.

DISTRIBUTED  
NATIONALLY BY



1672  
UNION COMMERCE  
BUILDING

CLEVELAND, OHIO

DEVELOPERS & DISTRIBUTORS OF TRUCK EQUIPMENT  
ENGINEERED TRUCK CONVERSIONS FOR EVERY ROAD & LOAD



## They carry the rolling loads

In the major industries, wherever wheels turn, Bower Roller Bearings carry the rolling loads. Invisible but indispensable, they perform silently and faithfully the most important tasks in the mechanical world. There is nothing in industry that is finer in design, more accurate or more nearly perfect in performance than Bower Roller Bearings. Bower precision is measured in millionths of an inch.

B O W E R   R O L L E R   B E A R I N G S





## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED FROM PAGE 164)

sion; steering gears; rear axles; brakes; universals and propeller shafts; clutches and transmissions.

Each of these groupings are divided into types and, then, broken down into detailed operations. For example, there are 57 of the latter on the job sheet for one type of steering gear, alone.

Second year subjects cover engines, carburetion, fuel feed, and all branches of automotive electricity, including battery testing and maintenance.

In connection with their instruction program, trainees are taught to use manufacturers' maintenance handbooks, general shop manuals and other reference material, such as trade publications. Periodic "exams" and "quiz sessions" serve to fix mechanical detail in students' minds. "Progress Charts" record the ad-

vancement of the individual trainees.

The names of trainees in each class are listed in a wide column, at the left of the form. A series of narrower columns are headed up with the various work assignments each student must complete. An "X" in one of these columns, opposite the trainee's name, indicates that he has finished that particular "job assignment." From this chart the instructor can tell, at a glance, the progress of the class, as a whole, and of each member.

Some work assignments are individual, while others are carried out by two or more students, working as a "team." Thus, the trainee learns to work, alone, and to coordinate his effort with that of others.

### Actual Work Done

WHEN the course was inaugurated, the "laboratory specimens" used by trainees for shop practice consisted of two stripped chasses, part of the school's regular equipment, and "junkers" supplied by new and used car dealers. Later, members of the school's sizable teaching staff began to bring in their personal cars for routine maintenance operations.

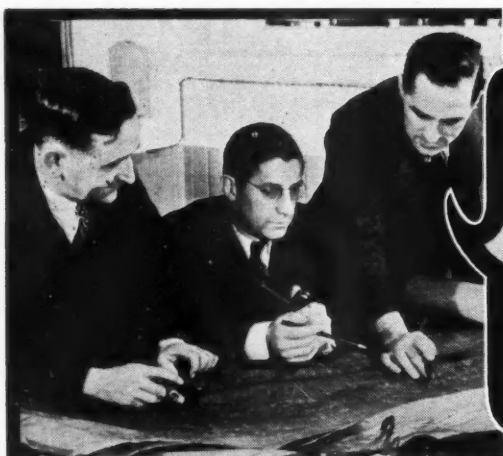
Finding that lubrications, valve-reconditionings and kingpin renewals were properly done, teachers were encouraged to try out the skill of these embryo mechanics on more extensive repairs. In this way, trainees have the opportunity to gain experience on later model cars than the "antiques" they, formerly, worked on.

### Fleetmen Pleased

HOW do these school-trained teenagers prove up in fleet shops? Fleet shop managers who have given them a trial report that they are highly pleased with the results obtained. One Miami fleet superintendent had two Tech. High trainees working for him but lost them ("regretfully," he said) to the Armed Services.

Two other fleet men have sent their sons to the school. One of them has two youngsters taking second year training there now, and employs them in his shop on a part-time basis. The son of the second fleet manager graduated but joined the Merchant Marine, shortly afterward. Accord-

(TURN TO PAGE 168, PLEASE)



*and now*  
FOR THE  
**TRUCK  
HARDWARE**  
*we'll look to—*

**Eberhard**

HINGES  
LATCHES  
DOOR IRONS  
DOOR CONTROLS  
DOOR HOLDERS  
SEAT IRONS  
LOCK HANDLES  
SEAT PEDESTALS

### LOCKS

REFRIGERATOR  
PANEL DOOR  
VAN BODY  
SLIDING DOOR

ROPE HOOKS  
LADDER HOLDERS  
ETC.

# EBERHARD

This body builder, along with hundreds of others, has learned the wisdom of standardizing on the Eberhard line of automotive hardware.

There is an Eberhard item for your every standard or most exacting requirement on large or small body jobs. There is an "Eberhard Man" in your neighborhood who will gladly show you just how and where the Eberhard line will fit into your body building picture.

Let's get together! A card or 'phone call will bring our experienced "man in your neighborhood" to you. He'll show you how to simplify designing and lower your costs.

Catalog No. 13 is also available upon request.

**EBERHARD** *Long Run*  
**TRUCK BODY FITTINGS**

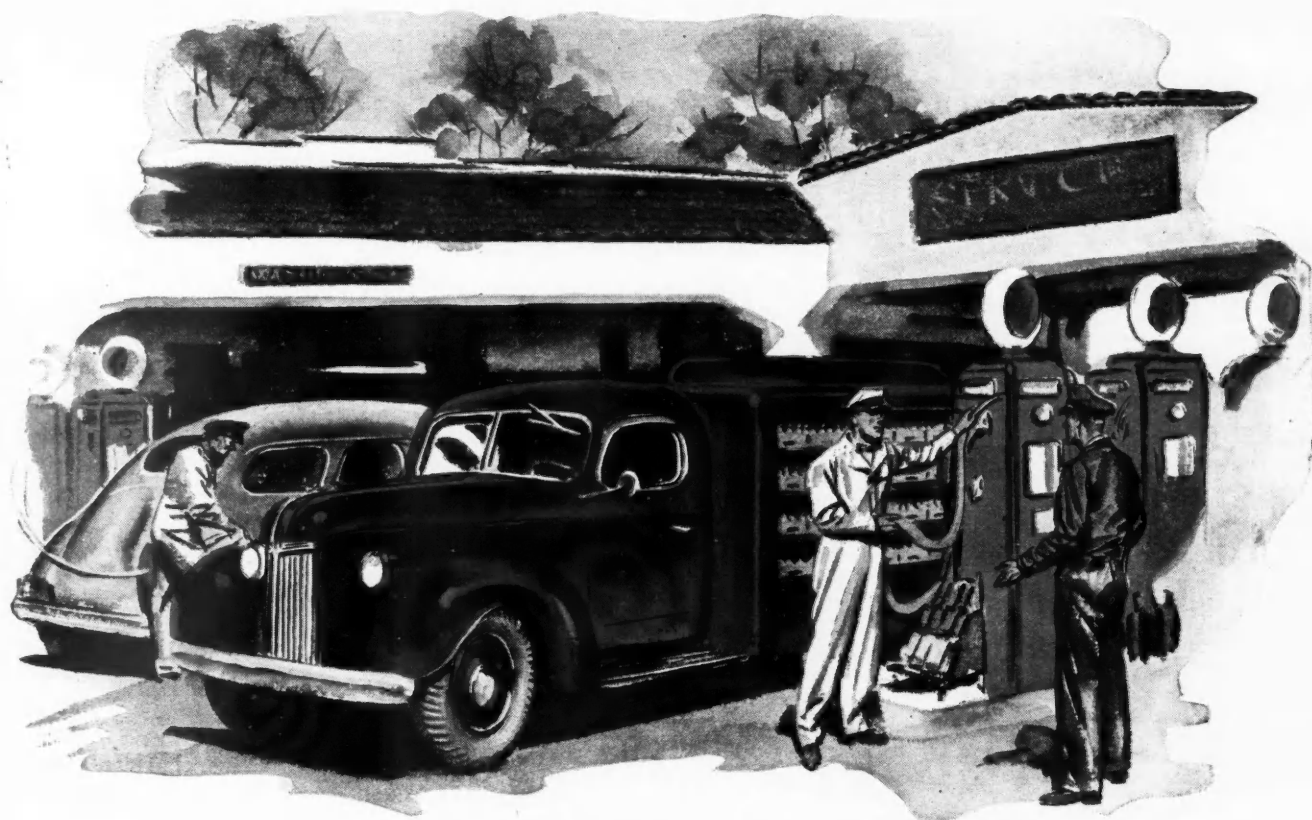
EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co.

2734 TENNYSON ROAD

CLEVELAND, OHIO





## HOW BRAKES SAVE GASOLINE

Gasoline consumed by increased idling speeds of motors does not haul a pay load. HYCON Brakes are 100% hydraulic. They require no vacuum-actuated "boosters." Consequently, the carburetors on HYCON-equipped trucks can be adjusted to maximum idling efficiency for economical fuel usage, and to reduce wear and tear on their motors. HYCON *Compound* Cylinders provide positive braking control whether motors are running or not. That's why HYCON Brakes can cut your fuel bill.

### HYCON Brakes Save Tires, Too

These all-hydraulic brakes reduce tire-scuffing because the power they deliver at the wheels is always under the driver's positive control. Pedal pressures are in direct proportion to braking pressures. The safety factor is increased because the lag caused by atmospheric pick-ups is eliminated. They are low in first cost and maintenance, and can be installed without special training or equipment.

### Make a Trial Installation

A test on your own trucks will prove the advantages of the HYCON *Compound* Cylinder. Get a trial unit and make your own tests. Now available are units to replace 1 1/4" and 1 1/2" Di. original equipment master cylinders. Order from your local power brake distributor or direct from The New York Air Brake Co., 420 Lexington Avenue, New York 17, N. Y.



**CONTROLLED**

**BRAKING**

**COMPLETELY**

**HYDRAULIC**

Eliminates brake lag, improves safety factor, simple and quick to install, cuts tire wear and fuel consumption, reduces maintenance.

Look for the Registered Trade Mark

**THE NEW YORK AIR BRAKE COMPANY**

420 Lexington Avenue, New York 17, New York



# NEW



**METHOD**  
*at work*  
*in*  
*companies*  
*like*  
*yours*

This up-to-the-minute news-picture magazine shows how wide-awake management in many lines of business is utilizing palletized unit loads and fork trucks . . . to end the burden of costly manual methods and speed production.

## GOOD NEWS FOR HIGHWAY SHIPPERS

Mechanized handling made available to highway shippers by the new Clark Trucloader Method.

*Clark builds* GAS AND ELECTRIC POWERED FORK TRUCKS AND INDUSTRIAL TRACTORS

## CLARK TRUCTRATOR

Division of CLARK EQUIPMENT COMPANY  
BATTLE CREEK, MICHIGAN

OTHER PLANTS — BUCHANAN, JACKSON, BERRIEN SPRINGS, MICHIGAN

CLARK TRUCTRATOR, 1045 24th St., Battle Creek, Mich.

- ☐ HAVE YOUR NEAREST FIELD ENGINEER CALL.
- ☐ SEND US COPY OF MATERIAL HANDLING NEWS.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED FROM PAGE 166)

ing to his father, a supplementary diesel engine course the lad took has helped him in getting rapid promotion.

### Placement Record

THE school has a placement record on about 18 of its automotive course students, who have taken jobs, full or part-time, in fleet shops or in other branches of the automotive repair trade. This is a low score, as compared with trainee employment in other trades—electrical shops, for example.

One reason for this situation seems to be that the automotive course was established only a short time before the war when broad-scale induction and voluntary enlistment of its graduates and partly-trained students began. Another cause for low placement appears to be an under-valuation, on the part of some fleet managers, of this source for recruiting "junior mechanics."

The employment record for motor-generator course trainees shows a much different picture. Practically, every electrical repair shop in the city offers a warm welcome to students of this course—graduate or under graduate, full or part time.

One motor-generator repair shop has taken a total of 12. Placement has been made, too, with battery and refrigeration-service firms and with automotive electrical specialty shops. The demand far exceeds the supply. In fact, the school has an employer waiting-list for electrical course trainees.

When a student makes his arrangement for part-time employment through the school's placement office, his instructor keeps in touch with the quality of his workmanship by periodic contact with the employer. If the report is good, the trainee is credited on the school records with "shop time," equal to the number of hours he is employed. Thus, he acquires actual working experience under conditions where his productive effort is evaluated in terms of wages paid, rather than in grades on a report card.

(TURN TO PAGE 171, PLEASE)



## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED FROM PAGE 168)

### The Pay Rate

**T**HE pay rate for automotive course students runs from \$10 a week, for part time, to a high of \$50, in one instance, for full employment. The average is \$20 to \$25.

Electrical course trainees' pay ranges from \$10-\$12, part time, to a high of \$32.50 for full time. Here, again, the average is \$20 to \$25.

These figures show only what wages trainees received while still in school or shortly after leaving. Two electrical course graduates now employed in an automotive electrical shop are getting \$1 and \$1.10 per hour, respectively.

The cost of conducting the Miami vocational program is borne, collectively, by the County, State of Florida and the Federal Government. Not only does the Government contribute to the running expenses, such as instructors' salaries, but, also, it has donated needed equipment to an approximate value of \$300,000 for use in the various courses given. In addition, local and other hotelmen's associations have given generously for equipment employed in a hotel service course, included in the school's curriculum. Hotels maintain a permanent waiting list for "service" trainees.

### Most States Have Trade Schools

**N**EARLY, every state in the Union has some form of trade training. New York State, according to a Vocational School Directory published by the U. S. Office of Education, has vocational training schools in 14 cities. New York City, alone, conducts 13. Pennsylvania operates them in 27 cities. California, however, seems to top the list with trade schools in 38 cities.

Some schools divide their automotive repair instruction to provide special courses in such subjects as body and fender work, auto painting and automotive electricity. Five California cities, including Los Angeles and Oakland, offer a special course in the last named subject. Several schools, among them Santa Inez, Cal., give automotive painting

(TURN TO NEXT PAGE, PLEASE)

# GALION

## HYDRAULIC DUMP BODIES HAVE SATISFIED THOUSANDS OF OPERATORS!



On any kind of job and on any type of chassis GALION Hydraulic Dump Bodies have an enviable record of delivering the goods. Operators and contractors alike, know from experience that Galion's double lift arm hoist is second to none for power and trouble-free service. For complete satisfaction, make your next dump trucks Galions.

THE GALION ALLSTEEL BODY CO., Galion, Ohio

**SEE YOUR NEAREST GALION DISTRIBUTOR**  
for complete information and prices on the hoist and body to meet your  
material handling requirements.

## EYEING TRADE-TRAINED TEEN-AGERS

(CONTINUED FROM PAGE 171)

instruction. Schools in nine cities, including Duluth, Cleveland and Richmond (Va.) conduct a body and fender course.

The coming of the war and the consequent labor shortage developed a need for adult trade training, especially, for personnel to keep the wheels of automotive transportation

turning over. Some schools—Miami's, for example—already had provision for training grown-ups. Where such courses existed, their scope was broadened. Where no training source was available, and the need was apparent, one was set up.

The Texas State Board of Vocational Education sent its automotive repair instructors into the "field" to set up classes in those areas, where the shortage of shop personnel was most critical. In this case, dealer and

fleet shops were used for teaching trainees. Memphis, Tenn., and Roanoke, Va., solved their shop manpower problem by establishing regular schools for broad-scale mechanic and helper training. Similar shop labor "bottlenecks" were broken loose in many other cities, as well.

Much of this war-caused vocational training impetus still remains. And in many fleet maintenance shops a need for good apprentice material, helpers and even for first-line mechanics, exists also. Thus we have a shortage and a ready-made supply source to satisfy it.

"Our philosophy of vocational education," explains P. W. Seagren, principal of Miami's Tech High, "is to meet as nearly as we can, through contact with employers in the different trades, their personnel-training needs." And that expresses, pretty well, the viewpoint of most vocational education directors. For one thing, they aim to make their respective training programs as flexible as possible.

For instance, Miami fleet operators may arrange a special course—carburetor repair, automotive electricity, arc welding or any other pertinent subject—for their shop personnel. The only requirement is a minimum class enrollment of 15 persons. If a single shop cannot provide that number of enrollees, its manager may be able to induce other fleet "bosses" to cooperate in forming a class. And, very likely, a similar arrangement may be made with vocational schools in other cities.

In short, this type of institution appears to offer a genuine "out" to the fleet maintenance superintendent with a shop efficiency or personnel shortage problem to work out. If he has one, he will be well-advised to discuss it with the director of his local school. And, especially, should he visit the teen-age classes and see for himself how effective are the methods for training the fleet mechanics of tomorrow.

END

(Please resume your reading on P. 50)

### PONTIAC FORMS FLEET SERVICE

Creation of a Fleet Sales Department to serve the demand for Pontiac automobiles in fleet operations has been announced by D. U. Bathrick, general sales manager of Pontiac Motor Division. Frank Salvini, is in charge of the new operation.



## Edwards trailers stay on the job and out of the shop

● Truckers *everywhere* agree that Edwards trailers stay on the job and out of the shop. Their long life and low maintenance costs stem from Edwards long experience building trailers from *Edwards tried and proved engineering principals*... and from the added knowledge gained building Army trailers.

Production of these fine trailers is going forward with all possible haste, but the demand still exceeds the supply. Therefore, we suggest your placing orders as far in advance as possible.

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

# EDWARDS





**GET BETTER CARGO PROTECTION  
WITH THIS MORE UNIFORM DUCK**

Better cargo protection and longer wear is woven into every square foot of MT. VERNON Extra Duck... the duck that gives you tops in tarps when you're looking for weather-fighting and wear-resisting covers. For covers that will shed weather and stand up under the roughest kind of wear, specify MT. VERNON Extra Duck.

*uniformity makes  
the big difference*

**MT. VERNON-WOODBERRY MILLS**

**TURNER HALSEY  
COMPANY**

*Selling*  *Agents*

**40 WORTH ST. • NEW YORK**

**Branch Offices: CHICAGO • NEW ORLEANS • ATLANTA • BALTIMORE • BOSTON • LOS ANGELES • SAN FRANCISCO**

JUNE, 1946

*Use postage-paid card inserted at page 59 for free information on advertised products*

**173**



# RUGLYDE SAVES TIRES, TUBES AND MANPOWER ON TRUCK TIRE CHANGING



ENDORSED AND USED BY CAR  
AND TIRE MANUFACTURERS, AND  
MAJOR OIL COMPANIES.

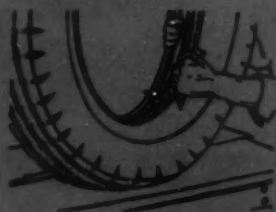
Fleet owners across the nation find RuGLYDE reduces their tire maintenance costs. This 100% safe, non-petroleum, penetrating rubber lubricant speeds mounting and dismounting of heavy duty bus and truck tires . . . and prevents tire and tube failures. RuGLYDE is recommended and used by major oil and tire companies and leading car manufacturers for two main reasons:

1st, for *dismounting* stuck or rusted tires, RuGLYDE applied to both sides of tire along the edge of bead creeps in rapidly, loosens and lubricates so that removal is accomplished with less time, strain and fatigue for the service man, and without danger of damage to the bead and rim.

2nd, tires mounted with RuGLYDE give longer service. Pinching and chafing are prevented because RuGLYDE provides proper lubrication to seat tubes and flaps with minimum pressure so that they slip — not stretch — into place. RuGLYDE will not induce rim rust or cause tire static which injures tubes. Harmless to wheel and rim finishes.

It's the scientific, ready-to-use, safe and economical rubber lubricant to reduce tire and tube failures, — lower labor costs. Order From Your Jobber Today.

## FASTER, SAFER TIRE CHANGING - ECONOMICAL, PAYS FOR ITSELF



**MOUNTING** — With a small cloth, apply RuGLYDE sparingly to areas of tires, tubes or flaps requiring a wet lubricant.  
**DISMOUNTING** — Apply RuGLYDE to both sides of tire along edge of rim. Allow few minutes for penetration, then proceed with removal.



AMERICAN GREASE STICK COMPANY  
MUSKEGON, MICHIGAN

## COUPLING FAILURES

(CONTINUED FROM PAGE 53)

culty from the fact that the small landing gear wheels of loaded trailers would often sink several inches into the ground even on macadam-paved parking lots. When this occurred, either the whole load had to be hand jacked, or the chance taken that the fifth wheels would align sufficiently for the tractor to force the trailer up as it coupled. Sometimes they missed.

The solution came in the form of a slightly convex trough of reinforced concrete at ground level. These troughs are installed wherever trailers are parked in large numbers, and provide adequate footing to assure proper alignment at all times.

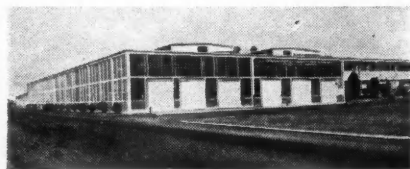
It is beyond the scope of this account to give full specifications of these installations inasmuch as local contractors should be consulted for expert advice taking into consideration the climate, type of soil, weather conditions, etc.

Basically, however, the curbing used by Akers Motor Lines, when used in conjunction with 3½-ft. loading docks, is mounted so that the top of the curved section is 1 ft. above ground level and 2 ft., 8 in. out from the loading dock. A 2-in. drop is allowed for drainage from dock to top of curvature and roundness is determined by most frequently used tire size.

The trough system for landing gear wheels installed at Atlantic States Motor Lines is approximately 1-ft. wide with convex top about 2 in. deep mounted flush with surrounding roadway. Length is, of course, determined by local requirements, but one end should be slightly lower than the other to allow for drainage.

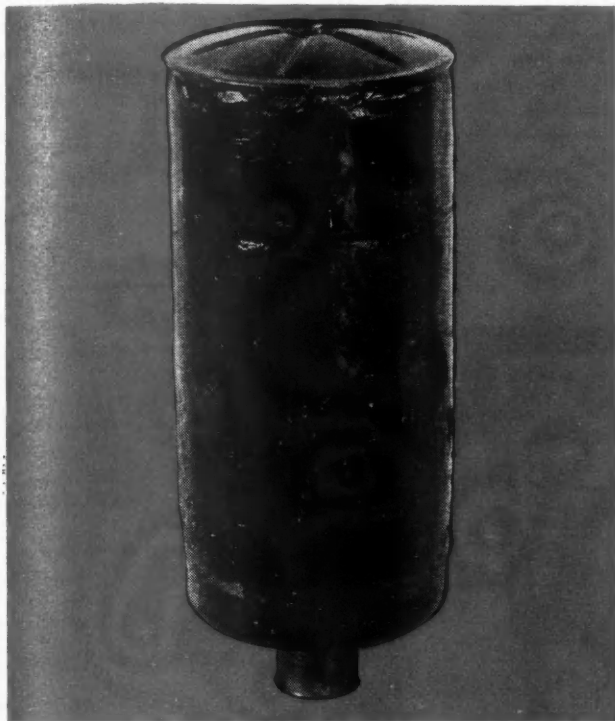
END

(Please resume your reading on P. 54)



View of the new Emeryville Works, where International heavy-duty "Western" Trucks of 30,000 to 90,000-lb. gross weight rating are being produced. This plant occupies more than 200,000 sq. ft. of land and will employ 300 men

# Diesel Engine **DANGER** points



*Filter deposits formed in 204 hours with best un-compounded mineral oil.*

## RPM DELO Oil Reduces Filter Clogging Two Ways

As the two filters illustrated show, RPM DELO Diesel Engine Lubricating Oil greatly lengthens the time between shutdowns for filter servicing. This is accomplished in two ways:

1. A detergent in RPM DELO Oil prevents the stuck piston rings which, through blow-by, permit dust, unburned fuel and carbon to mix with oil.
2. Another compound in RPM DELO Oil fortifies it against oxidation.

Other additives in RPM DELO Oil protect Diesel Engines against corrosion, excessive wear on upper cylinder walls, and foaming.

To match the fine performance of RPM DELO OIL, use these equally efficient companion products from the same famous "RPM" line—RPM HEAVY DUTY MOTOR OIL—RPM COMPOUNDED MOTOR OIL—RPM GEAR OILS AND LUBRICANTS—RPM GREASES. For additional information or name of your distributor, write any of the companies below:

STANDARD OF CALIFORNIA • 225 Bush St., San Francisco 20, California  
THE CALIFORNIA COMPANY • 17th and Stout Streets, Denver 1, Colorado  
STANDARD OIL COMPANY OF TEXAS • El Paso, Texas  
THE CALIFORNIA OIL COMPANY • 30 Rockefeller Plaza, New York 20

## Clogged Oil Filters Cause Frequent Shutdowns

One cause of frequent costly and time-wasting Diesel shutdowns is filter clogging. The condition can become dangerous since a clogged filter may stop circulation of oil to the engine if the warning of a drop in oil pressure is not heeded. Analysis of filter deposits prove them to be composed of products resulting from incomplete burning of the fuel and oxidation of oil plus iron, silica and water.

*Filter Deposit formed in 1230 hours with RPM DELO Oil.*



## NEW PRODUCTS

(CONTINUED FROM PAGE 61)

"Twecotong" is a conventional tong type holder featuring almost indestructible molded-laminated glass cloth Bakelite insulation keyed to the holder casting. Tensioning spring firmly seats on fibre upset washers and is protected from spatter by non-binding Neoprene tubing. Well-ventilated fibre handle, together with good cable connection, assures a cool running holder. All parts are replaceable.

Use Free Postcard For More Details.

### P326. Sensory Torque Wrenches

The P. A. Sturtevant Co. of Addison, Ill., announces the addition of four new models to its Sensory line of Torque Wrenches. They are as follows: Model S200 having capacity 0 to 200 ft.-lb., calibrated in 5-ft.-lb. steps; Model S300 having capacity 0 to 300 ft.-lb., calibrated in 10-ft.-lb. steps; Model S2400-I having capacity 0 to 2400 in.-lbs., calibrated in 50 in.-lb. steps; Model S3600-I having capacity 0 to 3600 in.-lb., calibrated in 100 in.-lb. steps. These four models are equipped with  $\frac{3}{4}$ -in. drive squares.

This wrench permits the measurement

of pre-set torque by sight, sound and feel. When the pre-set torque has been reached, the sensory mechanism sounds a loud and distinct click and imparts a definite strong impulse to the hand. The applied torque can also be read on the dials which are readable from all working angles. Thus, through three senses, sight, sound and feeling, the operator automatically releases, by reflex action, his pull on the wrench (even before the conscious mind reports it) making torque both fast and accurate.

Use Free Postcard For More Details.

### P327. Barrel Grease Pump

Easier pumping action is said to be assured with the new barrel pump for greases and oils, developed by the Bishman Mfg. Co., Osseo, Minn.

A new type of piston and valve construction is said to provide greater pumping action. It will pump up to three gallons of heavy grease or viscous fluid per minute, and will reach greater capacity with lighter fluids.

A positive shut-off valve stops escape of both liquids and vapor. The pump fits both 2- and 1½-in. barrel openings and rests at a convenient height for filling cans.

Use Free Postcard For More Details.

### P328. Valve Puller

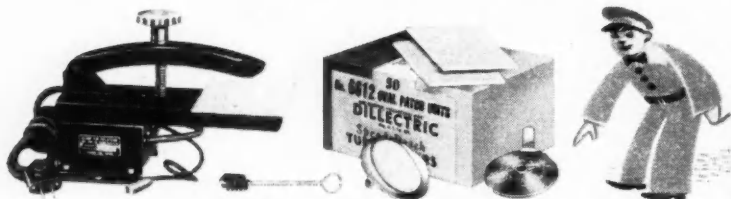
A new type of valve-loosening device, called the "Easy-Way" Valve Puller, which removes valves by an upward jarring action rather than by a prying operation, is now being manufactured by Associated Producers, Inc., Detroit, Mich.

The device has a 3-lb. hammer which slides on a vertical rod. When the valve is grasped by the pull-plate at the lower end of the device, a few upward strokes of the slide-hammer loosen and pull out the valve, even though it may be packed solid with carbon.

(TURN TO PAGE 180, PLEASE)

## REPAIR TUBES

THE HANDIEST—QUICKEST WAY



More than 75,000 service stations now use Dillelectric because it's so simple—fast—sure—the profitable way to turn out guaranteed tube repair jobs.

There's no guesswork—no failures—when you use Dillelectric. It handles every type of injury—punctures, tears, or valve stem replacements—in both synthetic and natural rubber tubes. It completely fills, reinforces, vulcanizes—makes a permanently safe repair. The electrically heated, ready-prepared patch units are automatically time and temperature controlled.

Go Dillelectric, today. Give your business the benefit of this profitable, low-cost, modern service. A postal card request will bring you full information.

### THE DILL MANUFACTURING CO.

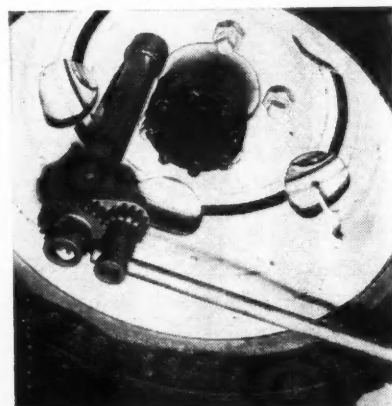
700 East 82nd St.

Cleveland 8, Ohio



**INSTRUCTION MANUAL FREE**  
Pictures and describes the proper preparation of synthetic tube injuries for safe, permanent vulcanization.

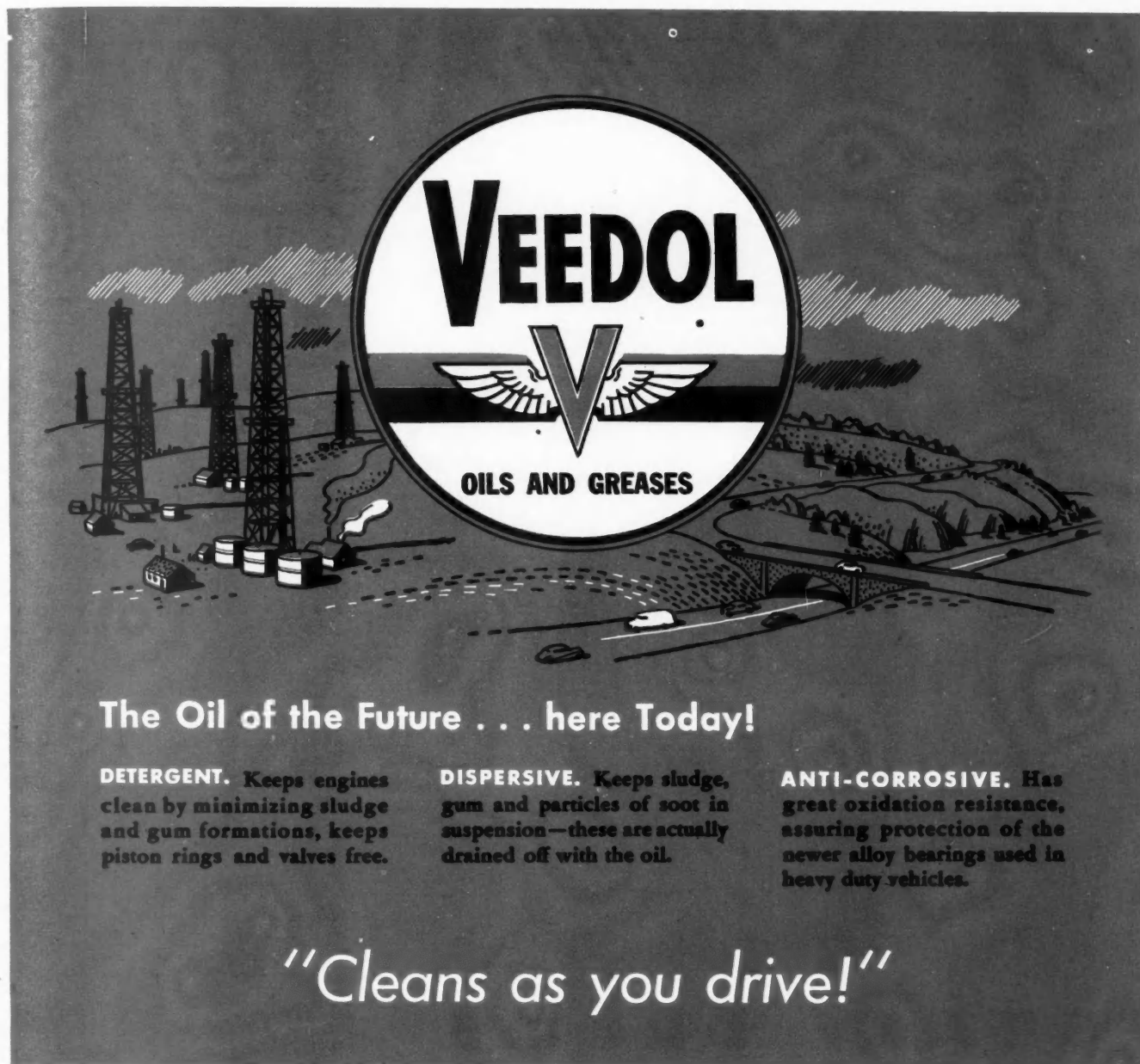
**DILLECTRIC**  
REG. U. S. PAT. OFF.  
*Electrically* **VULCANIZED**  
**TUBE REPAIRS**



This is the "Powerench," a new tool developed by the B. K. Sweeney Mfg. Co. of Denver, Col. The new tool employs the power derived from a gear and pivot arrangement to loosen the inner and outer nuts on Budd dual wheels. It is said that one man can remove the tightest nuts with the wrench without the use of a welding torch.



... but "long-haul" oil is here!

The illustration features a large circular logo in the center with the word "VEEDOL" in bold, sans-serif capital letters. Below the name is a stylized "V" with wings, and at the bottom of the circle, it says "OILS AND GREASES". The background is a dark, textured landscape. On the left, there are several oil derricks and storage tanks. On the right, a road with a bridge and a car is shown. The overall style is a classic mid-20th-century industrial illustration.

**The Oil of the Future . . . here Today!**

**DETERGENT.** Keeps engines clean by minimizing sludge and gum formations, keeps piston rings and valves free.

**DISPERSIVE.** Keeps sludge, gum and particles of soot in suspension—these are actually drained off with the oil.

**ANTI-CORROSIVE.** Has great oxidation resistance, assuring protection of the newer alloy bearings used in heavy duty vehicles.

*"Cleans as you drive!"*

But it's more than a smooth, smooth lubricant—the "oil of the future" is fully detergent, dispersive and anti-corrosive, too!

Your engine is *cleaned, continuously*, even on the longest grind. You get more miles between repair jobs, more pay loads between overhauls.

Try Veedol 90 H.D. in your present equipment. Available today in S.A.E. 10 to 50. Send for complete information and prices.



17 Battery Place, New York 4, N. Y. • Thompson Bldg., Tulsa 2, Okla.

## NEW PRODUCTS

(CONTINUED FROM PAGE 176)

It is claimed that the "Easy-Way" will loosen the toughest valve in a few seconds. As it pulls the valve straight out instead of at an angle, as with prying devices, danger of bending the stem is effectively eliminated.

The device is 13 in. long, and weighs 4½ lb. It works on all types of passenger car and nearly all types of truck engines, pulling all sizes of valves up to 1¾ in.

Use Free Postcard For More Details.

### P329. Mechanic's Tool Sets

Two specially selected tool sets for war veterans are announced by the Plomb Tool Co. The sets are obtainable free under the Government's Apprentice Training Program, which allows an ex-GI up to \$100 worth of tools when he is approved by the local Veterans Administration office.

Final selection of the tools in each set followed a very careful study of the requirements of apprentice mechanics. They are suggested sets, however, and veterans have the option of making their own tool selections.

One set, retailing at \$100, contains 113

items. Including ¾-in. drive sockets and several large wrenches, it is ideal for shops that make both heavy and light repairs. The other set, retailing at \$49.99, contains 60 items. Tools in this set are the ones used most in the average shop, and they will handle practically all of the jobs encountered in the early training period.

Full details on the veterans' procedure for obtaining tools, together with complete descriptions of the two sets offered by Plomb, are contained in Bulletin No. 4624.

Use Free Postcard For More Details.

### P330. Fog Fire-Fighting Unit

A new fog unit for fire fighting has been developed by Bowser, Inc., Ft. Wayne, Ind. The fog fire fighting units are being built in two models, the only difference being that Model 1030 has a shorter hose and smaller cabinet than Model 1033, which has 100 ft. of 1-in. hose.

The unit is connected directly to a water line. A swing-joint mounting on the wall or a stand pipe makes it possible for the cabinet to revolve in alignment with the direction of the hose pull.

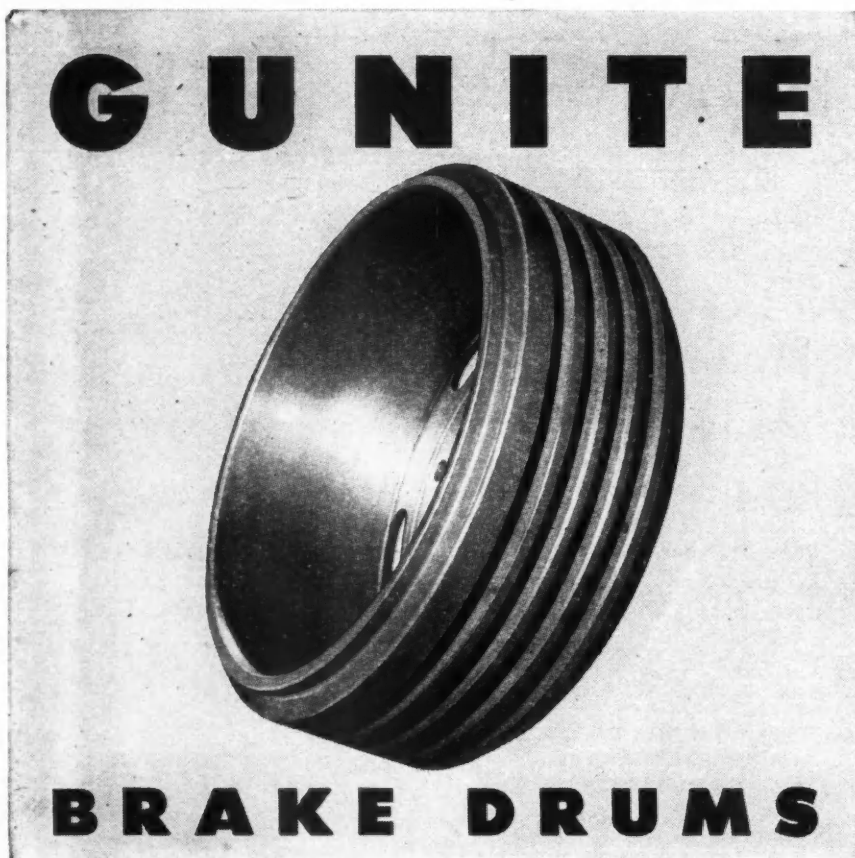
A valve actuating fixture holds the fog nozzle for instant use, and fog appears at the nozzle within four seconds after reaching for the hose. The automatic valve releases the spray to full capacity instantly upon removing the nozzle from the cabinet fixture.

The unit is said to be unusual in that the special nozzle supplies a finely atomized fog with only a medium pressure as is normally provided by city water systems.

With fog fire control there is said to be less water damage than with a solid stream of water. However, to provide protection in instances where a flame is impossible to reach with fog, the unit is also equipped with a standard solid stream nozzle.

Use Free Postcard For More Details.

(TURN TO PAGE 182, PLEASE)

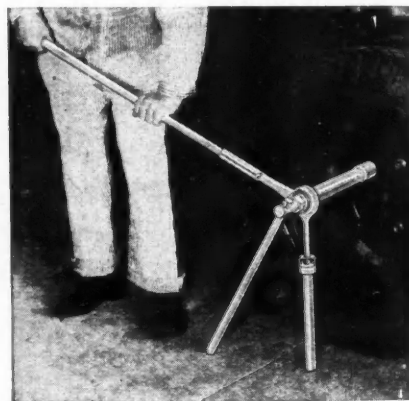


## MORE FOR YOUR MONEY

GUNITES deliver more miles per dollar invested. They reduce operating costs by eliminating breakage, by reducing frequency of adjustments and service, and by giving better braking efficiency and longer life. Skilfully engineered designs and material eliminate flex on cam and anchor sides, provide self-lubrication, prevent burned spots. A trial set of GUNITES on a tough run will quickly demonstrate their over-all economy. Buy GUNITES — for better braking!



GUNITE BRAKE DRUMS . . . FOR TRUCKS, TRACTORS, TRAILERS and BUSES



The new Budd wheel wrench manufactured by the Owatonna Tool Co., Owatonna, Minn., includes an outer socket, an inner socket which slides inside the outer socket, an outboard jack support, a 28-in. bar and a 1¾-in. box wrench with a 36-in. detachable bar handle. The wrench is said to make removing easier



**New Wing,  
Shaft Packing—**

**New Cover  
Seals—**

**—a longer, trouble-free life  
for the NEW 1946 Houdaille<sup>\*</sup>  
Shock Absorbers**

- Additional engineering developments during the War have also brought to Houdaille a new high level of precision manufacture and new standards of road and ride performance. And so Houdaille proudly contributes the finest Houdaille Shock Absorbers ever built to the ride appeal of the fine new 1946 automobiles.

HOUE ENGINEERING DIVISION OF  
**HOUDAILLE-HERSHEY CORPORATION**  
MAKERS OF HYDRAULIC CONTROLS  
BUFFALO 11, NEW YORK

<sup>\*</sup>Pronounced—Hoo-dye



## NEW PRODUCTS

(CONTINUED FROM PAGE 180)

### P331. Plastic Head Hammer

A new hammer with an unbreakable "Castex" (hard plastic) double-head that will not mar flat surfaces of metal has been announced by the Schmidgall Mfg. Co., Peoria, Ill.

The "Kant-Mar" fills a special need in machine shops, tool rooms, repair shops, electrical shops, automotive and all types of industrial and service organizations. It is particularly useful on flat metal surfaces where mars, dents and blemishes must

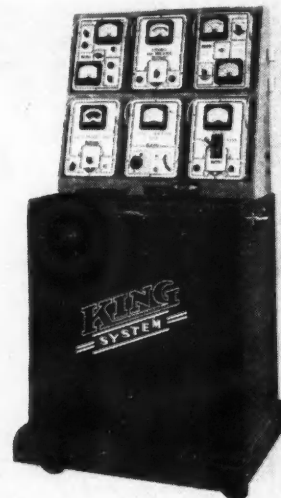
be avoided according to the manufacturer.

It is durably constructed, yet light in weight and correctly balanced. The head is die cast, is non-breakable, fire proof, acid proof, and of non-conducting material. The base of the head is machined from special light weight aluminum alloys, securely fastened to the head but interchangeable. The handle is high grade hickory.

Use Free Postcard For More Details.

### P332. Portable Motor Tester

A new motor analyzer designed with portable individual tester units has been



placed on the market by The Electric Heat Control Co., Cleveland, Ohio. This King Motor Analyzer is equipped with six testers any of which may be removed from the compartment without disturbing the others.

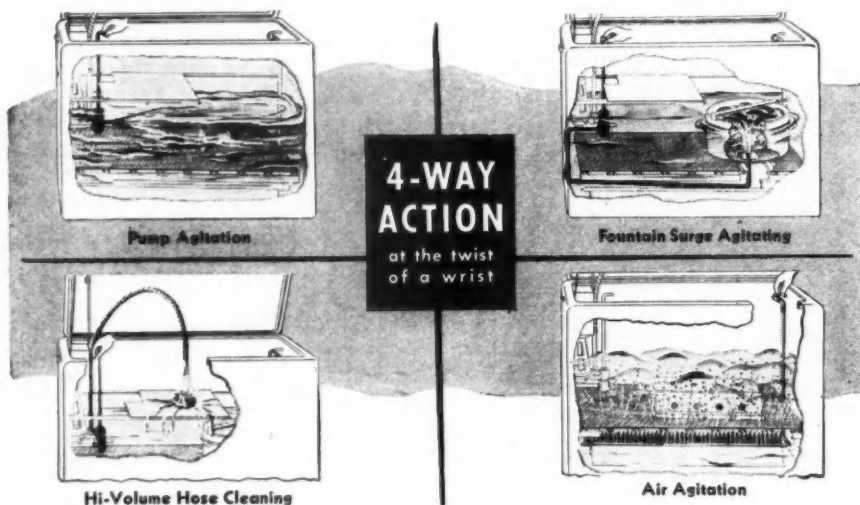
The units of the analyzer may be purchased separately as desired, including the base and head section, so that shop men with limited capital can purchase testers as the business is built up.

The analyzer is said to be advantageous to the fleet operator in that it can be set up in limited space and can be moved about the shop as required.

The individual units available with the tester include the fuel pump tester, spark plug tester, coil and ignition tester, cam angle—electro tachometer, condenser tester, generator tester and the exhaust gas analyzer.

Use Free Postcard For More Details.

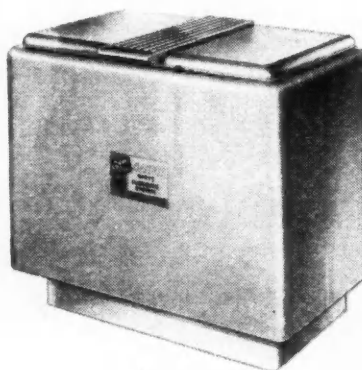
## Here's how to DECREASE CLEANING TIME for MORE PROFIT TIME



## GRAY-MILLS AGITOR PARTS CLEANING SYSTEM

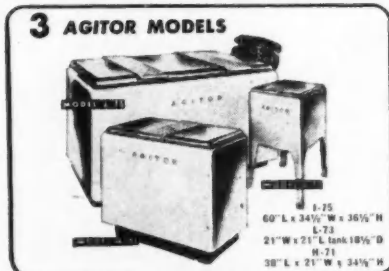
Users of this new, safe cold cleaning method report faster cleaning...more profit time...improved shop appearance...elimination of messy, old-fashioned cleaning in buckets and pans...better precision workmanship...faster reassembling...and complete customer satisfaction.

No heating problems, with an AGITOR. 4-Way Action of Model H-71 fits every automotive cleaning task.



GRAY-MILLS CORPORATION, 1942 Ridge Avenue, Evanston, Ill.

### 3 AGITOR MODELS



H-75  
60" L x 34 1/2" W x 36 1/2" H  
H-72  
21" W x 21" L tank 18 1/2" D  
H-71  
38" L x 21" W x 34 1/2" H

Gray-Mills Corporation, Evanston, Illinois  
Please send catalog on Agitor Parts Cleaning Systems.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

### P333. Welding Electrodes

The McKay Co. of Pittsburgh, Pa., announces a line of shielded-arc welding electrodes especially designed, packaged and merchandised for small quantity users who need general utility welding rods.

Distributed under the trade-name "McKay-Rod," these electrodes are packed in water and grease-resistant Handi-Cartons, weighing 3 1/2 to 5 lb. per box depending on size and type. Each carton-label fully describes the type, size, uses and characteristics of the rods contained therein.

The three McKay-Rod types—M-1, M-2 and M-3—have properties which make them suitable for almost any normal weld-repair job. All types work on AC and DC welding equipment. The M-1 is recommended for general welding and for welding frames, truck bodies, agricultural implements, etc. The M-2 is used for welding light-gage metal, bodies and fenders and for other welding of light sheet-metals. The M-3 for welding cast-iron, is recommended for water-tight welds on engine blocks and cylinder heads and for light and heavy casting repairs.

Use Free Postcard For More Details.  
(TURN TO PAGE 184, PLEASE)



— ONLY *American* MAKES THIS STOREROOM ON WHEELS

American designs line construction bodies for one purpose—to help utilities maintain service at low cost per mile.

The list of materials transported conveniently and safely in an American DPL or DT Line Construction Body includes ladders, pike poles, derricks, and the dozens of other articles needed on the job. Full equipment means better service at less cost to you.

American incorporates these many diversified items in a rolling storehouse by scientific ratio of weight, strength, and durability. To make all this possible, we need:

- (A) good body engineers — American has them.
- (B) ample facilities — American has full assortment of tools and a large plant.
- (C) experience — American has been in the business for 30-odd years.
- (D) customer confidence — American and American's utilities co-operate in designing equipment.

American makes six basic lengths—and offers 60 optional equipment items.

Maintain your high service standards with American (we carry everything) Line Construction Bodies.

#### LOG OF AN AMERICAN ROLLING STOREHOUSE

- 1 Flat-top Wheel Housings
- 2 Platform extension—non-skid steel plate
- 3 Roomy Compartments
- 4 Pressed-in Combination Rubrail and Drip Mouldings
- 5 Weatherproof Roof Enclosure
- 6 Adjustable Ladder Racks
- 7 Derrick Tunnel
- 8 Digging Tool Compartment
- 9 Full Length Inside Compartments
- 10 Swivel-type Material Hooks
- 11 Thru Boxes
- 12 Pintle Hook
- 13 Extended Sheave Bar Brackets.

*Just off the Press!*

New bulletin on American's Line Construction bodies shows dimensions, sizes, equipment, features, and other information of interest to you. Your copy ready to mail upon request.

**THE *American* COACH and BODY COMPANY**  
9503 WOODLAND AVE., CLEVELAND 4, OHIO

"Baker American" . Baker Equipment Engineering Co., Richmond, Va. . Sales and Assembly



## NEW PRODUCTS

(CONTINUED FROM PAGE 182)

### P334. Roller Thrust Bearing

Development of a new type of roller bearing capable of carrying heavier loads at higher speeds and lower temperatures—heretofore a “missing link” in the chain of anti-friction bearing evolution—has been announced by SKF Industries, Inc., of New York City.

The new-type spherical roller thrust bearing is expected to facilitate wind tunnel operation for research into such aeronautical projects as gas turbine and jet propulsion speeds and designs. It will also

ease maintenance and operating problems on large vertical water pumps, electric generators and other high-speed machines.

Other important applications of the new development are as thrust blocks on marine propeller shafts, on roll necks in steel and aluminum rolling mills, and as thrust mountings for railroad turntables, water turbines, water wheels, oil well swivels, dredge pumps, extrusion machinery for plastics and rubber, and various types of gear drives.

The bearing's self-aligning principle which compensates for any shaft deflections, distortions or weaves is said to permit heavy loads to be distributed evenly over all rollers and eliminates danger of

overloading. Because of its compactness, it utilizes less space and is lighter in weight than a plain bearing.

Use Free Postcard For More Details.

### P335. Fluorescent Lamps

New fluorescent lamps, designated as 4500 deg. white lamps, in 40-watt T12 and 100-watt T17 sizes have been announced by Sylvania Electric Products, Inc. of Salem, Mass.

A result of more than two years of research and testing of new phosphorescent coatings and lighting performance, these lamps are offered for many applications where lighting can be improved by using a colored light source “warmer” than standard 6500 deg. daylight lamps and “cooler” than the standard 3500 deg. white types.

Initial ratings for the new 4500 deg. lamps are 50 lumens per watt for the 40-watt size and 40 lumens per watt for the 100-watt size.

Use Free Postcard For More Details.

### P336. Battery Preserver

Corrosion on battery cables and connections can now be prevented and eliminated through the use of a liquid, self-vulcanizing synthetic rubber material marketed under the name of Yu-Re-Nu, according to its manufacturer, R. S. Jones and Son, of San Gabriel, Calif.

Yu-Re-Nu is easily and quickly painted on battery cables and connections and is said to give them a positive, long-lasting, protective coating. It also forms a complete protective insulation for bare copper or aluminum wires.

No heat is required for application. In addition to its use as a protective material, it renews cracked, worn, “leaky” electrical wire installations by covering them with a heavy rubber coating, thus eliminating the necessity of costly rewiring of circuits. Applied to damp, soggy wires, the solution immediately dries them and protects them from further moisture. The manufacturer claims that it will positively resist water, oil, grease, gasoline, battery acid, heat and cold.

Use Free Postcard For More Details.

### P337. Drain-Cock Wrench

A new type of wrench for opening drain-cocks has been announced by Associated Producers, Detroit, Mich.

Measuring 4½ in. in length, the “Drain-master” Drain-Cock Wrench has ends of two different sizes, designed to fit practically all drain-cocks such as are found on radiators, engine blocks, heaters, etc.

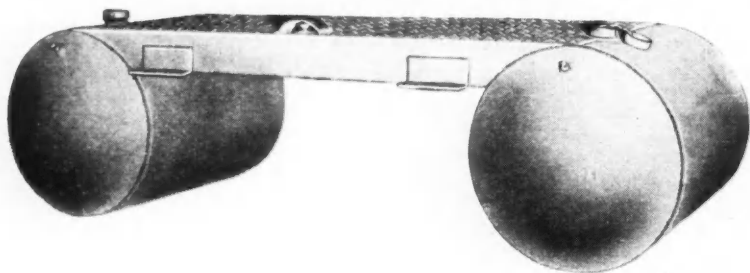
By applying pressure evenly to both ends of the cock at the same time, it protects the cock against breakage. The baffle-plate construction of the wrench ends shoots the water out at the sides, keeping it from spurting straight out or running down the mechanic's sleeve.

Use Free Postcard For More Details.

END

(Please resume your reading on P. 62)

... GREATER SAFETY plus  
GREATER ECONOMY with ...



## the D&G CYLSAD SAFETY TANK

Dished heads of 12 gauge flanged steel (pickled and oiled) pressed into electrically welded shells give double thickness around entire outer edge of side compartments — provide maximum crash resistance. Safety valve allows normal passage of air and prevents explosion due to accumulated pressure. Static proof brass filler caps are chain fastened to prevent loss and baffles under necks prevent pilfering of fuel.

**LARGE CAPACITY** Cylsad Tanks are of all welded construction, are braced and trussed internally, have ¾" removable counter-sunk drain plugs for easy draining and cleaning, and steel couplings for lasting protection to outer ends of outlet pipes. They're easily installed with only four bolts, pads and springs which are furnished with tank, have checkered finished top plate and are guaranteed for one year against leakage and material defects. Write for literature.

APPROVED BY UNDERWRITERS LABORATORIES

**DROMGOLD & GLENN**  
1419 McCORMICK BLDG. CHICAGO



# M E A N S   E V E R Y T H I N G

**T**HE outstanding achievements of our Rubber Industry during the war have become unforgettable milestones in the pattern of victory. The race against time in the development and practical use of synthetic rubber was typical of American ingenuity as directed thru scientific research and applied to vital war needs.

In the making of tires for war purposes, the result of this unified effort opened vast new horizons thru the creation and use of this new kind of base material—synthetic rubber. In this great attainment many well known industrial concerns played a leading part. Well in the foreground was The Mansfield Tire & Rubber Company. From the very beginning Mansfield's contribution was both important and continuous.

Today, as a result of first hand experience in creating, testing and applying this synthetic rubber knowledge, the tires made by Mansfield under the Mansfield, Century, Richland and United brands are unsurpassed in quality and performance.

Jobbers and their dealers now may benefit from this Mansfield war knowledge by handling tires unexcelled in all those virtues that make for long wear, long life and complete satisfaction.

*Mansfield's jobbers are more than distributors of merchandise. They, also, are arbiters of quality...value...price. By independent choice and through deserved confidence of jobbers, dealers and users, tires made by Mansfield have earned their enviable reputation for service and dependability.*

THE MANSFIELD TIRE & RUBBER CO. • MANSFIELD, OHIO

*Following Well Known Tires—*

**RICHLAND, UNITED**

WHOLESALE EXCLUSIVELY

## LINCOLN ANNOUNCES PROGRAM

An opportunity for those engaged in the design, manufacture or construction of any type of automotive vehicle and the mechanical and structural parts of such vehicles, is offered by the James F. Lincoln Arc Welding Foundation of Cleveland, Ohio, with the announcement of the new \$200,000 "Design-for-Progress" Award Program.

The program is intended to encourage study and preparation of papers on design, research and education, application and use of arc welding. A total of 452 cash awards for the entire program will be presented

to writers of winning papers on the preparation of textbooks, on farming, and on practically all types of commercial and industrial progress involving welding.

Automotive, one of the 15 classifications, is divided into two divisions; Motive Power or Motive Power Accessories and Structures or Structural Accessories. Automotive maintenance men also enter the competition under the program's "Maintenance" classification.

Complete details of the program, which closes June 1, 1947, may be obtained by writing the secretary, The James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio.

## THIS MONTH'S PAYLOAD

(CONTINUED FROM PAGE 36)

The engine is placed in position on the stand with a chain hoist. The block is held in place by a bolt at each end. A swivel arrangement permits turning the engine to any desired position by means of a crank.

The mechanic grinds the valves and assembles them with the block in an upright position. Next, he turns the block on its side to install pistons, then turns it upside down to install bearings, shafts, oil pump and pan.

After the engine is assembled and painted, the mechanic installs a radiator on the front end of the stand and an instrument board on the other end. He then starts the engine running on the stand. After running 18 to 20 hours, it is given a final check, mounted on a dolly and placed in stock until needed. (Turn to Page 50, please.)



## Improvements on C.O.E.s



by JOSEPH GESCHELIN  
Commercial Car Journal  
Detroit Technical Editor

**W**HAT is new in c.o.e.s for 1947? Some of the answers will be found in this study for COMMERCIAL CAR JOURNAL readers, based upon contacts with every important manufacturer in the truck field.

Going over the returns, it is obvious that strikes and economic uncertainty have delayed action on the part of many important companies. Although they all cooperated, the majority asked us to hold their returns confidential. On the other hand, there are some ready and willing to talk. Here are two excerpts:

**WHITE MOTOR:** We propose to build a number of c.o.e.s with improvements which will facilitate maintenance. Regarding the future, we believe it is possible to make a c.o.e. which can be as good or better than a conventional model.

We expect to build not only a greatly improved suspension but, also, a complete system of heating and ventilating. We will attempt to improve vision and seating . . . ultimately build c.o.e.s of horsepower corresponding to conventional designs.

**DODGE:** Prewar models and ratings will be continued for 1947. There will be some interesting changes. For one thing, more accessibility under the cab. Also, driver comfort, improved engine performance.

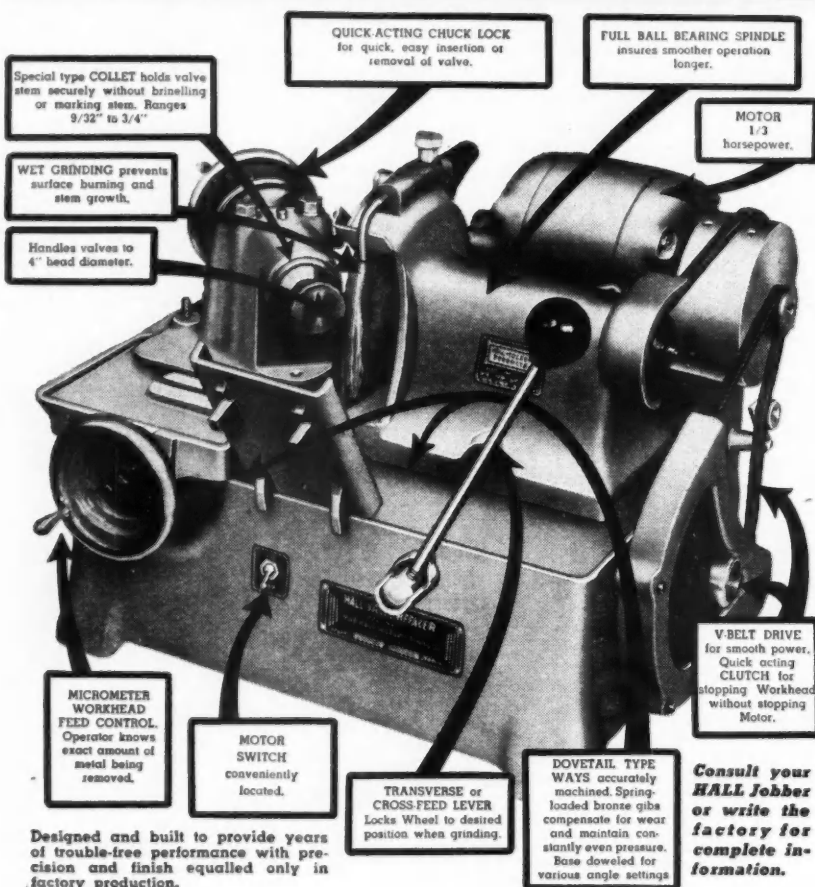
This brings us to the reports from producers who provided information but asked to keep it confidential. A complete digest of the reports submitted by this group will be found on Table I. (Turn to Page 38, please.)

END

(Please resume your reading on P. 37)

## HALL MODEL 80 WET TYPE VALVE REFACER

DUPLICATES ORIGINAL FACTORY PRECISION AND FINISH



## HALL PISTON PIN HONE SET

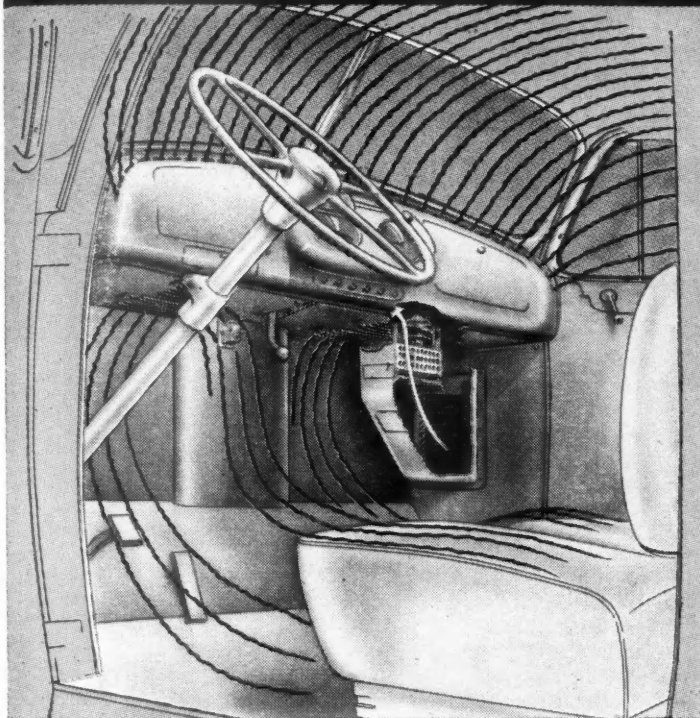


Now any mechanic can quickly and easily fit piston pins to a rotating, push, or press fit as desired. Eliminates use of costly reamers and reamer sharpening. Dulled or nicked reamers can be used for roughing and hole finished to size with these Hones. Can also be used for enlarging, rounding up or polishing small diameter holes in any metal. Low in first cost; economical to use. Can be used wet or dry with electric drill or in drill press. Made in 3-tool sets covering ranges of .740" to 1.150" and .484" to .750".

THE HALL MANUFACTURING COMPANY • TOLEDO 7, OHIO

# HALL

# Announcing The EVANS-SYSTEM



© EVANS  
© Major  
Improvement  
in  
TRUCK-CAB  
HEATING  
and  
VENTILATING

The new EVANS-SYSTEM\* for Truck-Cab Heating and Ventilating is a revolutionary advancement—engineered by EVANS for year-round comfort and safety. It eliminates carbon monoxide and dust from the cab, and it prevents fogging and icing of both windshield and side windows. One of the outstanding features of the EVANS-SYSTEM is a plenum chamber, created by sealing-off the area under the instrument panel. A large volume of fresh outside air is pumped into the plenum, and pressure is

built up to provide for distribution of air throughout the cab. Openings in the plenum can be closed, adjusted or directed at will, controlling both direction and quantity of air circulated.

Only EVANS has the exclusive "Airfoil" fan which makes possible the EVANS-SYSTEM. "Shirt sleeve" comfort in winter, with automatically controlled temperature—plus a flood of fresh air in summer—mean maximum comfort and safety! Write today for literature and specification sheets.

THERMO-AIRE DIVISION



\*T.M. Reg. U.S. Pat. Off.

# EVANS

## PRODUCTS COMPANY

DETROIT 27, MICHIGAN

**GUARANTEED Temperatures *Only* with EVANS Heaters!**





# INTRODUCING . . .

... THOMAS R. LIPPARD, recently re-elected president of the Federal Motor Truck Co.

... FERDINAND L. RUDDON, re-elected as vice president at the annual meeting of stockholders.

... W. A. WILLIAMS, as sales manager of the Ford Motor Co. He succeeds A. B.

PEASE, recently appointed general manager of the Light Car Division of the company.

... RUSSEL P. WOOD, newly appointed manager of the Ford Motor Co.'s Twin City branch in St. Paul, Minn.

... ALBERT J. BROWNING, recently appointed as director of purchases for the Ford Motor Co.

... WALTER J. HAECKER, named manager of the Jacksonville, Fla., district of the Tire Replacement Sales division of the B. F. Goodrich Co.

## FLEET fire protection by

# PYRENE



Transport operators know how one truck out of commission can throw off delivery schedules and delay shipments; even a small fire in an engine or load can put your truck on the dead-line. A Pyrene Vaporizing Liquid extinguisher stops all types of fires before they spread. It's safe to use on electrical apparatus because it's non-conducting and non-damaging. It smothers gasoline, oil and solvent fires with heavy, fire-killing vapors. It's compact, can be mounted anywhere in the cab of a truck, ready for instant action.



Large trucks need bigger fire equipment; stored pressure extinguishers in 2 qt. and 1 gal. sizes require no pumping, give adequate protection for your biggest trucks.



Gasoline pumps and oil storage tanks are a constant hazard. Pyrene has developed an instant foam maker — the Pyrene Foam Playpipe — hundreds or thousands of gallons of fire-curling foam per minute produced at the nozzle of an ordinary water hose. Safeguard your trucks and equipment with Pyrene. Let a Pyrene jobber or one of our engineers help you plan your protection.

Safety Sam Says Pyrene Tire Chains for Protection Too.



## Pyrene Manufacturing Company

NEWARK 8 NEW JERSEY

Affiliated with the C-O-Two Fire Equipment Co.

... J. S. WAINRIGHT, as vice president in charge of sales for the Mansfield Tire & Rubber Co., Mansfield, Ohio



... RICHARD M. BOLSTER, as central division manager of the Whiz Automotive Division of the R. M. Hollingshead Corp., Camden, N. J. He will make headquarters in Minneapolis

... JOHN READY, as sales engineer for the Gabriel Co., Cleveland, Ohio. He will be assigned to the Detroit sales office to assist in contacting automobile manufacturers



... JAMES RANKIN, as Eastern Division manager for Federal Mogul Service. He will make his headquarters at the new plant in Coldwater, Mich.

... ROBERT J. TELFORD, vice president and general manager of Reo Motors Co., of Canada, Ltd.



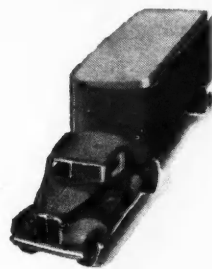
(TURN TO PAGE 192, PLEASE)

IT'S A SOFT TOUCH

6 TIMES OUT OF 7



THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc.  
Bridgeport, Connecticut



**GET FULL-RANGE BRAKE CONTROL  
...WITH RAYBESTOS**

*Slow down...slow down...slow down*  
*Slow down...slow down...slow down...STOP!*

★ Six times out of seven, it's a slow-down  
—a soft touch. You're actually driving  
with your brakes, controlling your truck  
with them.

Be sure of the power to slow down  
slightly or stop completely . . . be sure of  
*full-range* braking—reline with Raybestos.

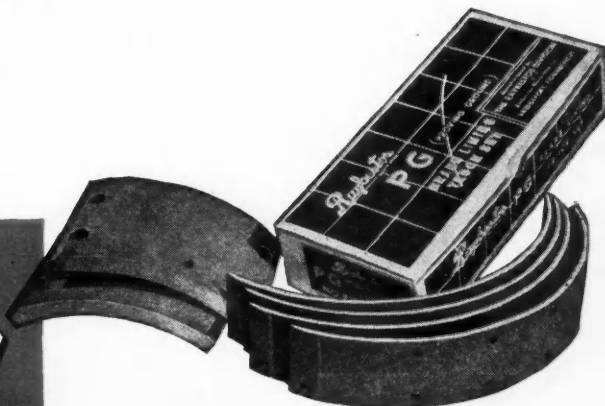
Raybestos builds seven different types  
of lining to give this *full-range* brake con-  
trol—engineers them into the right com-  
bination for every installation—PG Truck  
Sets for light and medium trucks; heavy  
duty blocks for bigger trucks and buses.

RELINING WITH

**Raybestos**

AMERICA'S BIGGEST SELLING

**BRAKE LINING**



**PG** PROVING GROUND TESTED  
BRAKE LINING • BRAKE BLOCKS  
CLUTCH FACINGS • FAN BELTS • HOSE  
for Cars, Trucks, Buses  
and Tractors

## INTRODUCING . . .

(CONTINUED FROM PAGE 190)

. . . CHARLES I. KRAUS, appointed sales manager of the Alemite distribution division of Stewart-Warner Corp. . . . And GUSTAVE TREFFEISEN, as assistant sales manager of the company.

. . . C. F. BRITTAIN, JR., recently appointed to the sales staff of the Pennsylvania Rubber Co. in the Los Angeles branch.

. . . J. J. WOLVERTON, as special representative in Southeast Texas for the Houston branch of the General Tire & Rubber Co.

. . . CLIFF G. CURRIE, newly appointed to a new sales position as sales engineer for the U. S. Tires division at the general offices of the United States Rubber Co. New district managers are HARRY J. NOZ- NESKY, Pittsburgh district; KARL N. CAR- TER, Memphis district; EDWARD W. OTTO, Salt Lake City district; and FREDERICK C. TUCKER, San Antonio district. WALTER L. CLARKSON has been named assistant district manager of the Philadelphia district. . . . WARREN STUART, KERBY GARRETT and JOHN McEWAN, who will handle sales for the Belden Mfg Co., in the respective areas of California, Texas and Oklahoma, and New York and New England.



**a Double!**

MOBO, famous for long hits, comes through with a "double" in the field of auto washes and polishes.

MOBO CAR WASH POWDERED is a new formula-neutral-efficient "wash" for passenger cars, trucks, buses. Quickly removes dirt, oil, grease and dried bugs. MOBO is easy to use and saves valuable time. No wiping dry necessary—just rinse. Cars are clean and bright after a MOBO treatment.

MOBO STREAMLINE AUTO POLISH puts a shine on cars that pleases owners—and MOBO does it quickly. MOBO is a one-operation polish—old method patch-by-patch procedure is eliminated when you brighten up with MOBO STREAMLINE AUTO POLISH.

MOBO CAR WASH POWDERED and STREAMLINE POLISH have a host of fans because they boost dealers' prestige with pleased customers. For a consistent high batting average in profits, order these products today.

**JOHN T. STANLEY CO., Inc., 642 West 30th St., New York, N. Y.**



. . . MILES POWELL, as general sales manager of the Whiz Automotive Division of the R. M. Hollingshead Corp. His headquarters will be in Camden, N. J.

. . . HARLEY B. RILEY, as Western Division manager of Federal-Mogul Service. He will continue to manage the Wichita, Kan., branch



. . . SCOTT E. COLLINS, as zone sales manager in charge of the new Cleveland office of the General Detroit Corp. and the General Pacific Corp.



. . . VICTOR MATULATIS, as division sales engineer of the Eaton Mfg. Co., Heater Division



. . . HARRY N. ROBERTS, newly appointed manager of battery and spark plug sales for the Replacement Tire Division of The B. F. Goodrich Co.



. . . E. DUDLEY KRESS, newly appointed assistant sales manager of the Ditzler Color Division of Pittsburgh Plate Glass Co., Detroit, Mich.



. . . WILLIAMS P. MICHELL, who has joined the engineering staff of the Spicer Mfg. Co., as technical assistant to the vice president



(TURN TO PAGE 194, PLEASE)



**NO MORE TROUBLE with  
SYNTHETIC TUBE REPAIRS**

**Good news for  
FLEET  
OWNERS**

**NEW INLAND Vulcanizing Unit—  
for faster, easier, less expensive  
tube repairs in your own shop!**

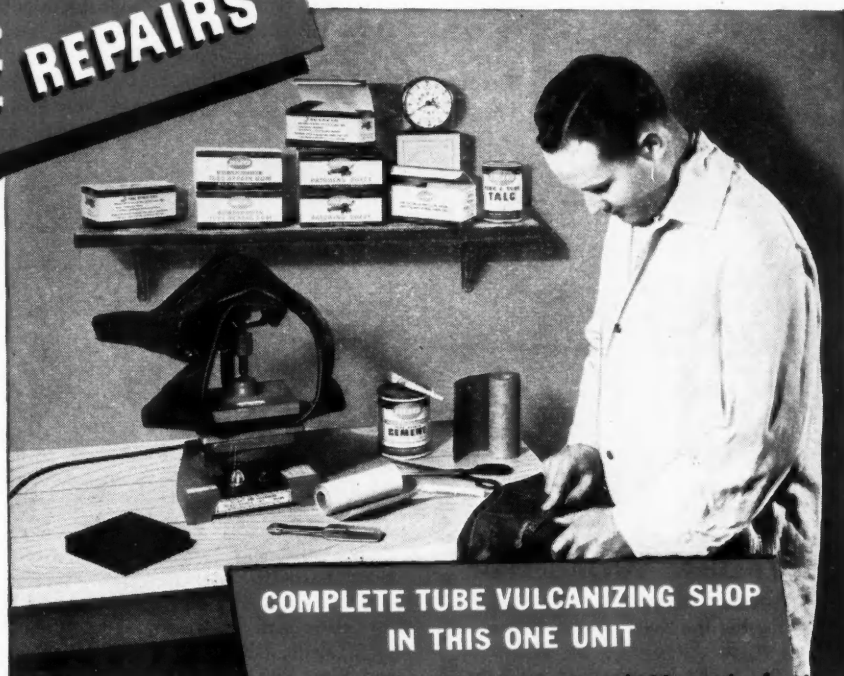
Now! There's a *faster* way to handle vulcanizing tube repairs in your own shop. The new Inland Tube Vulcanizing Unit No. 5 repairs injuries up to 6 inches long in one curing on both natural and synthetic rubber tubes. And does it quicker and at lower cost. You get Inland's famous thermostatically controlled Vulcanizing Press PLUS a complete stock of Gum, Vulcanizing Cement, Accessories and Tools. Easy to use . . . requires very little space. Your jobber has No. 5 Units in stock for immediate delivery.

**For both natural and synthetic rubber tubes**  
**Easy to use . . . no experience necessary**  
**Repairs injuries up to 6" long in one curing**  
**Handles valve stem repairs of all sizes**

Get details in  
New Free  
Folder



**INLAND RUBBER CORPORATION**  
Subsidiary of Minnesota Mining & Manufacturing Company  
Branches in thirteen principal cities



**COMPLETE TUBE VULCANIZING SHOP  
IN THIS ONE UNIT**

Includes Materials for more than \$200 worth of  
vulcanized tube and valve stem repairs



**Complete Unit  
only  
\$62<sup>72</sup>**

**INLAND RUBBER CORPORATION**

33 So. Clark St., Dept. C-56, Chicago 3, Ill.

Please send me free folder on Inland No. 5 Tube  
Vulcanizing Unit.

Address .....

Name .....

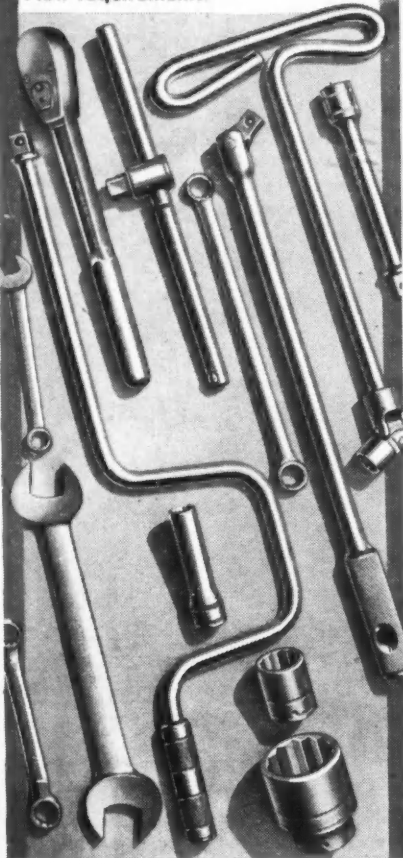
Town .....



## The DREAM of the Future

The first Automobiles  
in America carried  
Tool Kits made by  
**WALDEN WORCESTER.**

The New Automobiles will carry less  
tools: But the Mechanics—will need  
New Tools designed by **WALDEN  
WORCESTER** Engineers to meet the  
New requirements.



Send for Catalog No.  
141 picturing a full line  
of Automobile, Aircraft  
and Radio Tools.

**WALDEN  
WORCESTER**  
WRENCHES

**STEVENS WALDEN, INC.**  
468 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

## INTRODUCING . . .

(CONTINUED FROM PAGE 192)

. . . **ARTHUR J. WIELAND**, recently named  
director of a newly-created distribution di-  
vision of Willys-Overland Motors, Inc.

. . . **JOHN J. PAIGE**, who will take over the  
duties of advertising manager for Haske-  
lite Mfg. Corp., Grand Rapids, Mich.

. . . **ROBERT K. YECK**, as technical service  
representative for the state of New Mexico  
for Turco Products, Inc., Los Angeles, Cal.

. . . **GEORGE W. COCKE**, who has joined the  
sales force of Bowser, Inc., as a repre-  
sentative in the Tulsa, Okla., area.

. . . **HARRY C. KEBEL**, as advertising man-  
ager and **HENRY S. BEAN**, as sales promo-  
tion manager of the Ethyl Specialties Corp.,  
new company formed by the Ethyl Corp.  
to market Ethyl Cleaner.

. . . **J. FRED KENNY**, as sales manager of  
Standard Motor Products, Inc., Long Island  
City, N. Y.

. . . **H. CLAIRE DEES**, as manager of the  
Seattle division of Ethyl Corp., to succeed  
**HARRY KUHE**, who becomes manager of the  
Chicago division.

. . . **WILLIAM FLETCHER FARRELL**, who will  
direct Sinclair Refining Co.'s National Ac-  
count Division.

. . . **DON CALLENDER**, recently appointed to  
the sales staff of Toledo Steel Products  
Co., Toledo, Ohio. He will cover Virginia  
and West Virginia for the company.

. . . **CLIFF DESHETLER**, appointed to the  
sales staff of Toledo Steel Products Co.,  
to cover the Western Pennsylvania area.



. . . **H. H. ALLYN**,  
who has resigned  
his position of sales  
manager of the  
Warner - Patterson  
Co., to retire after  
more than 25 years  
with the company

**John W. Grimm**,  
who has resumed  
his duties with the  
Cooper Corp.,  
Findlay, Ohio, as  
manager of truck-  
bus tire sales



. . . **REX C. HALL**,  
new general man-  
ager of automotive  
sales of the Sher-  
win-Williams Co.,  
Cleveland, Ohio

. . . **ALWIN A. GLOETZNER**, who has been  
selected to head the new Southeastern ter-  
ritory for the New Departure Division of  
General Motors Corp.

(TURN TO PAGE 240, PLEASE)

## For a Better and Easier Brake Service Job . . .

## EIS HYDRAULIC BRAKE TOOLS

EVERY shop that renders brake service needs  
these efficient time-and-labor-saving tools. Built  
to the high quality standards that have made the  
Eis line "The Line of Dependable Service."



1—**WHEEL CYLINDER CLAMP**. Saves time and  
temper by preventing pistons from leaving cylin-  
der when shoes are removed, while repairing  
hydraulic brakes.

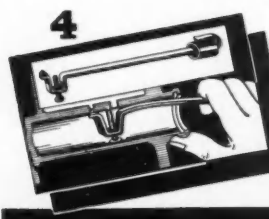
2—**HYDRAULIC BRAKE CYLINDER HONE**. Two  
sets of stones, coarse and fine, for grinding and  
polishing. Three sizes, for bores from 3/4" to 2".

3—**HYDRAULIC BRAKE PRESSURE BLEEDER**.  
Enables one man to do the work of two. Heavy  
steel, very durable. In several capacities to meet  
every requirement.

4—**BURRING TOOL**. Lengthens the life of the  
main cup in the master cylinder by removing the  
sharp edges of the by-pass port after honing.

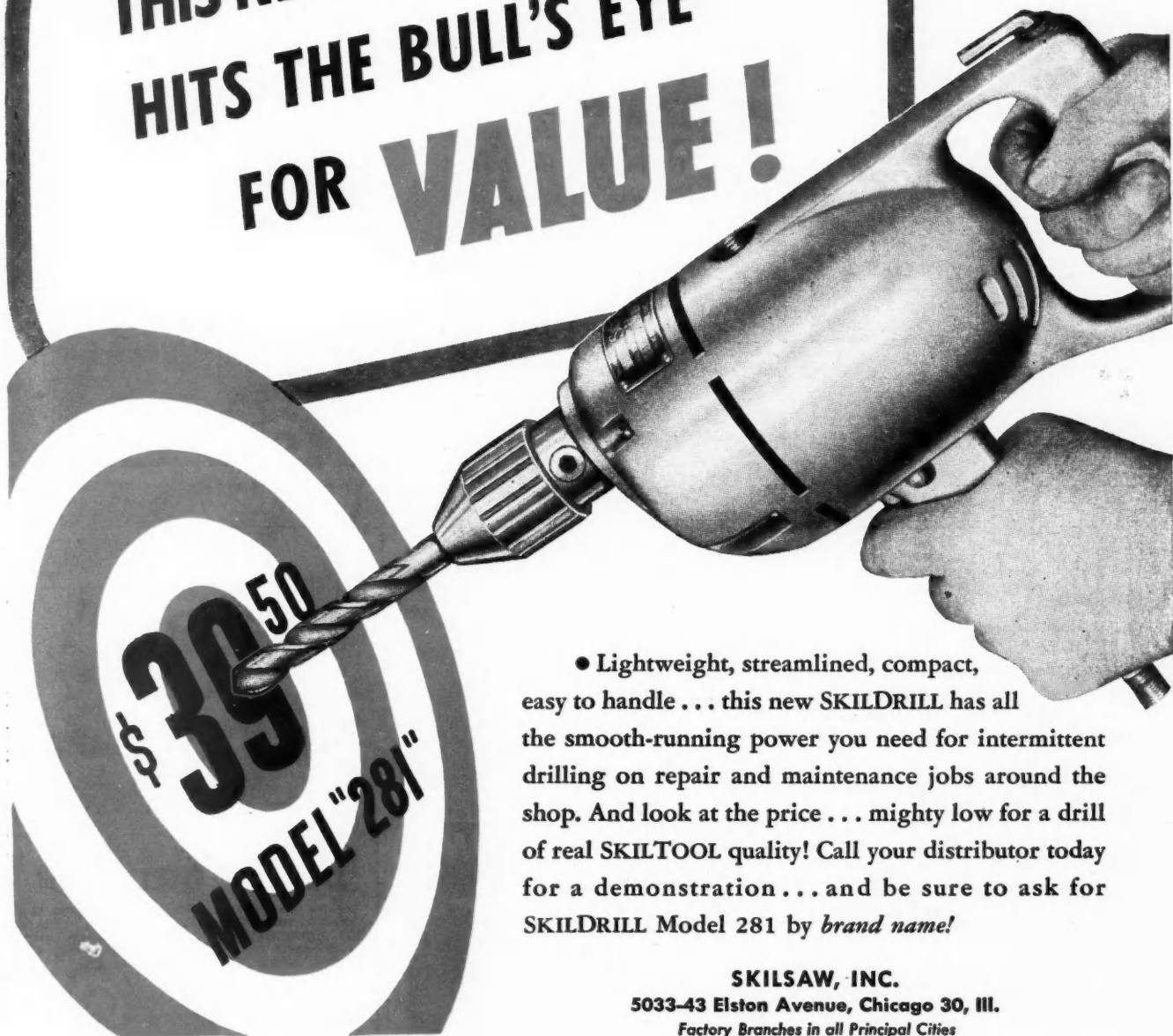
From your jobber. Write us  
for literature.

The **EIS AUTOMOTIVE Corp.**  
MIDDLETOWN, CONN.



THE LINE OF  
DEPENDABLE  
SERVICE

THIS NEW ½ INCH SKILDRILL  
HITS THE BULL'S EYE  
FOR **VALUE!**



• Lightweight, streamlined, compact, easy to handle . . . this new SKILDRILL has all the smooth-running power you need for intermittent drilling on repair and maintenance jobs around the shop. And look at the price . . . mighty low for a drill of real SKILTOOL quality! Call your distributor today for a demonstration . . . and be sure to ask for SKILDRILL Model 281 by *brand name!*

SKILSAW, INC.  
5033-43 Elston Avenue, Chicago 30, Ill.  
Factory Branches in all Principal Cities

# PORTABLE ELECTRIC SKILTOOLS

MADE BY SKILSAW, INC.





# Oldforge "Quality" Tools

Thousands of discriminating skilled mechanics in many of the world's largest industrial plants have been users of OLD-FORGE Quality Tools for over twenty years. They prefer OLD-FORGE Tools because they know they can depend on their uniform temper and are assured of daily uninterrupted service.

Tools bearing the name of OLD-FORGE are quality tools that have been carefully designed to do their job, and new tools to meet new mechanical needs are continually being added. You need not be envious of these mechanics. You, too, may be the proud possessor and user of OLD-FORGE Quality Tools. Their modest cost will interest you.

Contact your supplier or write us direct.

QUALITY TOOLS CORP. New Wilmington, Pa.  
New York Office: 11 Warren St. • Phone WOrth 3640

## A BUELL AIR HORN

is worth \$100 yearly  
ON ANY HEAVY  
HIGHWAY VEHICLE



- BUELL High Pressure Air Horns Speed Up Schedules and Cut Down Costs!
- They get instant response . . . reduce maintenance costs by decreasing unnecessary stops, starts and slow downs.
- They keep the Highways open so that a steady cruising speed is maintained . . . 12% better road time is the result!

TRUCK OPERATORS: BUELL High Pressure Air Horns are available NOW. Write us for Information and catalog sheet.

**BUELL MANUFACTURING CO.**  
2988 Cottage Grove Ave., Chicago 16

## KINNEAR ROLLING DOORS



For truck bodies as well as buildings. Rugged, dependable. Steel slat curtain coils up quickly, out of the way. Built any size. Motor operation, if desired. Write for details.

The Kinnear Mfg. Co.  
2100-20 Fields Ave.  
Columbus 16, Ohio



**HOOF FULL POWER GOVERNORS**

SEND FOR FREE BOOKLET  
HOOF PRODUCTS COMPANY  
6343 SO. LARAMIE AVENUE, CHICAGO 38, ILL.

## CCJ NEWSCAST

(CONTINUED FROM PAGE 194)

### IHC REORGANIZES IN KANSAS

The International Harvester Co. has taken steps to expand its motor truck and farm equipment business in Wichita and the Kansas area, with the establishment of a separate motor truck branch in Wichita. L. A. Hanson has been named branch manager. L. J. De Mars will head the general line branch which handles the company's farm equipment line in Wichita.

### MACK COMPLETES DALLAS PLANT

Work has been completed on the new Mack-International Motor Truck plant in Dallas, Tex. D. C. Wheeler, who directs the company's operations throughout one half of Texas, all of New Mexico and the Republic of Mexico, will manage the new branch.

The modern fire-proof building covers nearly half a block and will contain complete facilities for the distribution and 24-hour servicing of trucks, buses, fire apparatus and marine engines. Offices will be air-conditioned.

(TURN TO PAGE 242, PLEASE)

## KEEP 'EM RUNNING



with

**KEX**  
TIRE PLUGS

The  
Wedler-Shuford Co.  
St. Louis 3 Mo.



## TRUCK DECALS from PALM BROTHERS

require no pencil varnishing

WRITE FOR OUR CATALOG

The PALM BROTHERS DECALCOMANIA CO.

Cincinnati 12, Ohio, U. S. A.

THE  
REPAIRMAN'S  
FRIEND!



**PURITAN**  
GASKA-SEAL



PREFERRED  
FOR  
REPLACEMENT

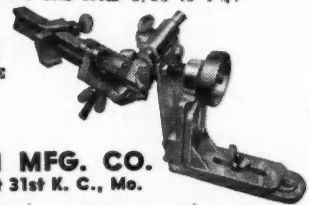
**SKF**  
BEARINGS



## NEW LOW COST DRILL GRINDER

Anyone can do expert drill grinding with this simple-to-use drill grinding attachment—fits on any bench grinder—saves buying new twist drills—saves time and materials that dull bits waste. Grinds bits from 3/16 to 1 1/4.

WRITE  
for FREE  
literature.



**T & H MFG. CO.**  
811-N East 31st K. C., Mo.

## HEAVY DUTY MOTOR TRUCKS

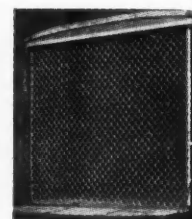
AND

GASOLINE ELECTRIC  
GENERATING SETS

**DUPLEX TRUCK COMPANY**

Lansing, Michigan

## ZEHR COLLAPSIBLE TRUCK BACKS

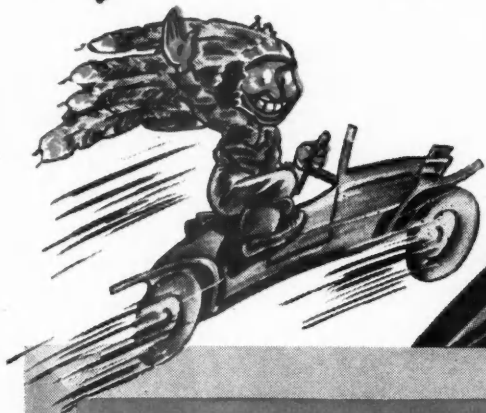


Safe . . . easy and simple to handle. Zehr Truck Backs are all-welded steel designed for great strength and long continuous service. They are theft-proof, rust-proof and flexible.

Write for details and prices.

**ZEHR PRODUCTS COMPANY**  
2188 East Hazard Street, Philadelphia 25, Pa.

# Ride a Winner... with Wausau!



## **WAUSAU** **Oil-savr**

THE FREE-RUNNING RING WITH THE SAFETY CENTER UNIT

● From coast to coast, Oil-Savr sales have been sweeping up — up — at a price that pointedly says — “here’s a winner worth riding”.

And for the best of all reasons . . . *outstanding performance.*

*Any repair man will tell you he’d rather use a piston ring that won’t carbonize than one that might . . . he’d rather use a ring that can’t fracture than one that could . . . he’d rather use a ring with minimum drag than one with lots . . . he’d rather use a ring that keeps on stopping oil pumping far beyond the ordinary life span of most replacement rings!*

If you have never experienced Wausau OIL-SAVR’S high level of piston ring performance, we invite you to try Oil-Savrs today. Write for information.

### WAUSAU HAS THE RINGS YOU WANT

Because Wausau is a leading manufacturer of *original equipment* rings, the Wausau line is exceptionally complete. Wausau *engineers* the correct companion rings in Oil-Savr custom-made sets to meet the individual requirements of most makes of passenger car, truck, tractor and industrial motors.

U. S. PATENT  
NO. 2323815

WAUSAU MOTOR PARTS COMPANY • 2400 HARRISON STREET, WAUSAU, WISCONSIN

JUNE, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

241

**IF YOU BUY FOR SAFETY—  
BUY AMERICAN!**

**AMERICAN SAFETY TANK CO.  
KANSAS CITY, MO.**

**KEN TIRE TOOLS**  
REG. U. S. PAT. OFF.



LEAD THE  
FIELD  
ADVANCED  
DESIGN  
QUALITY  
UNSURPASSED

SEE YOUR LOCAL  
JOBBER OR  
WRITE FOR  
LITERATURE

**KEN TOOL  
MFG. CO.  
AKRON 5, OHIO**

SET No. T-300

KEEP OIL CLEAN WITH

**PUROLATOR**  
THE OIL FILTER



**PUROLATOR PRODUCTS, INC.**  
Newark 2, N. J.  
Founder and leader of the oil filter industry

Specify

**Velvetouch**

BIMETALLIC FRICTION MATERIAL  
for

**CLUTCHES AND BRAKES**

**THE S. K. WELLMAN CO.**  
CLEVELAND, OHIO



**CARRY LOADS OF 10  
TO 12 TONS PER PAIR**

"Skid-Rol" Dollies. Heavy-duty. All-steel. For moving or shifting machinery, heavy objects, etc. Steel cleats bite into wood skids. Safer—faster. Size 18 1/2"x10 1/2"x4" high. Fill in below—  
**Techtmann Industries—Milwaukee 1, Wis.**  
Send details re: "Skid-Rol" Dollies to:

CCJ

## CCJ NEWSCAST

(CONTINUED FROM PAGE 240)

### TRUCKSTELL OFFICIALS MEET

Predicting that 1946 sales of the Truckstell Mfg. Co.'s distributors will exceed \$30,000,000, president Donald W. Meyer outlined nation-wide plans at the convention in Detroit, April 8-12. The meetings were attended by distributors, executives, sales and service personnel from all sections of the U. S. and Honolulu.

Guests at the Truckstell sessions included Ted V. Rodgers, president of American Trucking Assns.; J. W. Burke and A. R. Cosgrove, truck department of Chevrolet division of General Motors; J. D. Ball, Dave W. Lee, and V. C. Kloepper, truck division of the Ford Motor Co.; L. F. Van Nortwick, George A. Orphal, and Herman Ude, truck sales department of the Dodge division, Chrysler Corp.

(TURN TO PAGE 244, PLEASE)

### Classified Advertisement

#### TERRITORY MANAGER WANTED

Old established truck manufacturer has opening for wholesale territory manager. Must have a background of training and experience that will enable him to locate permanent truck dealers, train them and their salesmen, help the dealer to close business and generally supervise dealer operations throughout the State of Michigan, supported by a Detroit Factory Branch, salary and annual bonus basis of remuneration. To such a man we have a future that is both permanent and profitable. In reply give age, full employment record and education, military record, accompanied by photograph which will be returned. Box 5, Commercial Car Journal, 5601 Chestnut St., Philadelphia 39, Pa.

Better—but *not*  
more expensive!

**SHULER  
AXLES**

**SHULER AXLE CO.**  
LOUISVILLE, KY.

GET LONGER,  
TROUBLE-FREE PERFORMANCE  
with  
**Pedrick**  
precisioneered  
**PISTON RINGS**  
in guaranteed  
**ENGINEERED SETS**  
For every Car, Truck,  
Bus and Tractor

THE COMPLETE LINE  
that  
Completely Satisfies

Since 1906

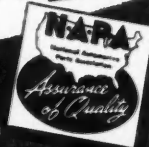
The  
**Fitzgerald Mfg. Co.**  
Torrington, Connecticut



**Fitzgerald**  
GASKETS

FOR AUTOMOTIVE PARTS  
AND SUPPLIES...

*Your NAPA Jobber  
is a Good Man to Know!*



**NAPA**  
Is the Largest  
Independent Organization  
in the Parts Industry

**NEW 12-PAGE BOOK**  
Tells How to

**GET ALL THE POWER  
YOU PAY FOR**

with

**MOTO-MIRROR**

CHASSIS DYNAMOMETER

Ask for Catalog C-61 CJ

**CLAYTON MANUFACTURING CO.**  
ALHAMBRA, CALIF.

**Available  
Trucks**

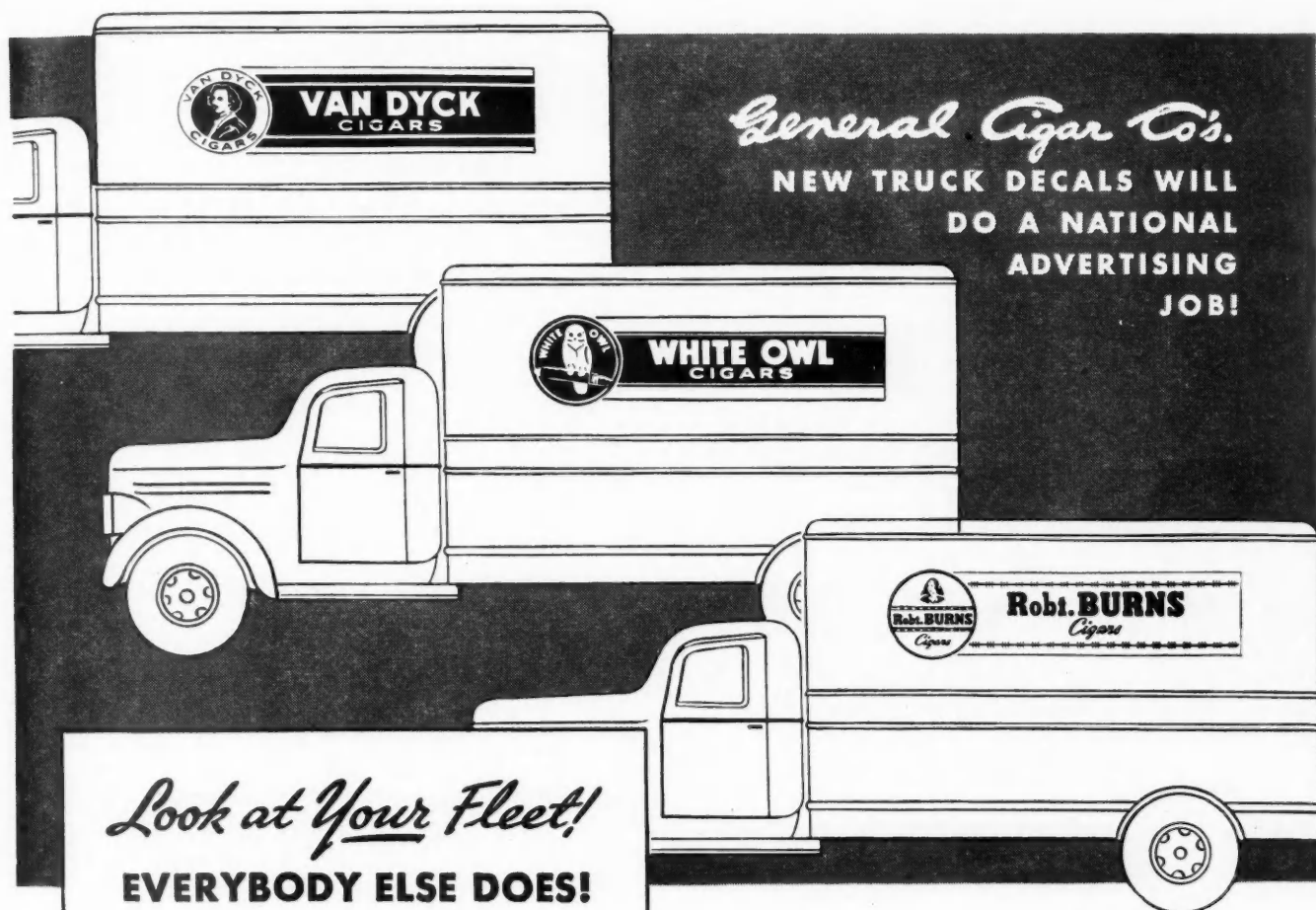
1 1/2 TO 20 TONS  
**TRUCKS • TRACTORS  
TRAILERS • BUSES**

(SINCE 1910)  
TELEPHONE—BRUNSWICK 1100

**AVAILABLE TRUCK CO.**  
2301 ELSTON AVE.—CHICAGO 47, ILL.



# MILES OF FREE ADVERTISING WITH *MEYERCORD DECALS*



*Look at Your Fleet!*

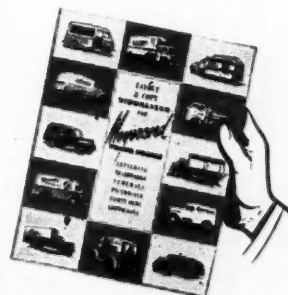
## EVERYBODY ELSE DOES!

Don't let the "free" advertising space on your trucks "go to waste." Side panels, rear doors, tops, visors and cabs offer miles of mobile advertising. And Meyercord Truck Decals offer the most efficient, low cost method of getting it. Trademarks, products, slogans, in any size or colors can be reproduced in durable, weather-tested Meyercord Truck Decals. They're economical for a dozen trucks or a thousand. Overnight application saves "off the street" truck time loss. Learn how the "free" advertising space on your trucks can help them pay for themselves. Write Department 32-6.

## WHAT GENERAL CIGAR COMPANY SAYS ABOUT THE USE OF TRUCK DECALS . . .

"Attractive auto signs have long been recognized by progressive distributing organizations in every field as an effective, practical way to tell consumers and dealers of the quality goods they handle. For several years past, a number of our distributors have featured our National Brands on their cars and trucks. We have been happy to participate in this mutually beneficial enterprise by furnishing the finest signs suited for the purpose, that money could buy."

**FREE! This Meyercord truck visualizer will help you plan. Send for it today.**



© 1946, Meyercord Co., Chicago

## THE MEYERCORD CO.

*World's Largest Decalcomania Manufacturers*

5323 WEST LAKE STREET • • • CHICAGO 44, ILLINOIS



## Yes! ONE MAN NOW REMOVES BUDD DUAL WHEELS *Easily!*

Here's the most complete and efficient tool yet devised for this heretofore troublesome job. Both the double disc wheel cap nuts and the double cap inner nuts can be removed separately. As shown above, the short bar is used as a stop against the ground, thus holding the inner wrench and inner cap nut in place without turning while the outer cap nut is removed.

The outboard support jack is quickly adjusted for height with a novel self-locking device. It permits exerting sufficient leverage to tighten or break loose the cap nuts.

No. 1201 Complete, includes outer socket, inner socket, 28" bar, outboard jack support, 1 3/4" box wrench and 36" bar handle. Units also listed separately.

ASK YOUR JOBBER  
or write for details

**OTC**  
TOOLS

**OWATONNA TOOL CO.**  
335 Cedar St.  
OWATONNA, MINN.

The COMPLETE  
Puller Line

GRIPOMATIC    PUSH PULLERS    PULLING ATTACHMENTS    Heavy Duty BOX WRENCHES

## CCJ NEWSCAST

(CONTINUED FROM PAGE 242)

### NEW BOWERS DIVISION

A new division to be known as the Electronic Products Division has been set up by the Bowers Battery & Spark Plug Co. of Reading, Pa., to manufacture radios, storage battery chargers, flashlight dry cell batteries and other electrical appliances, according to C. P. Bowers, president of the company.

### McQUAY-NORRIS OPENS BRANCH

McQuay-Norris Mfg. Co. has opened a new factory branch and warehouse at 1354A Commonwealth Ave., Boston, Mass. The new branch will carry adequate stocks of parts manufactured by the company, and will maintain a complete machine shop for piston finishing, pin fitting, tin plating and bearing resizing. The factory will house the district sales offices of the company under the direction of district manager John F. Thurston.

### VAN NORMAN CO. BUYS MORSE

The Van Norman Co., of Springfield, Mass., has purchased substantially all of the stock of the Morse Twist Drill and Machine Co., of New Bedford, Mass.

Morse Twist Drill will be operated as a separate corporation, according to the announcement, and will remain in New Bedford. Officers of the new management are: James Y. Scott, president; James A.

Wright, vice-president and general manager; M. J. Rainey, general sales manager; and L. H. Stanton, treasurer.

END

(Please resume your reading on P. 130)

**OVER 70% OF ALL  
MAKES OF TRUCKS  
AND BUSES ARE  
Zollner EQUIPPED  
ZOLLNER  
HEAVY DUTY PISTONS**

## FRAM

### FILCRON FILTER

*The Modern  
Oil & Motor Cleaner*

Be  
100%  
With  
10%

Buy  
Bonds

*Sterling*

## MOTOR TRUCKS

Quality Built  
Since 1907

**HEAVY DUTY FOUR AND SIX WHEEL CHASSIS  
FOR ON OR OFF-THE-HIGHWAY OPERATIONS.**

**GASOLINE AND DIESEL POWERED  
CHAIN DRIVE - - - ENCLOSED DRIVE.**

**STERLING MOTORS CORPORATION**

MILWAUKEE 1, WISCONSIN

Branches in Principal Cities

**Cooper**  
**TRUCK AND BUS**  
**TIRES**

The Cooper Corporation • Factories at Findlay, Ohio

*Don't fuss around, Mr. Jones...*



## SEE YOUR FLEET IN NEW COLORS *before painting!*

### FREE COLOR VISUALIZER

Why risk making mistakes? A few seconds with a Sherwin-Williams Color Visualizer and you can see your fleet in the color combinations *you select!* Remember, 1,225 color combinations are possible!

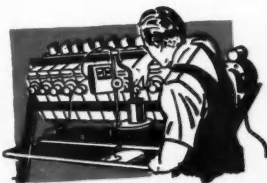
### COMPLETE COLOR SERVICE

Sherwin-Williams' Transportation Color Service consists of expert staffs ready to confer on *any* automotive finishing problem you may have.

The Sherwin-Williams O-K Distributor is equipped with a complete color mixing service. *Special* colors are factory-formulated, then referred to your O-K Distributor for your future use.

### Have your own COLOR MIXING SERVICE

Obtain a Sherwin-Williams Color Meter equipped with Color Key and you'll have the most complete and modern automotive color matching equipment available. Write today.



*check your*  
**SHERWIN-WILLIAMS**  
**OK distributor**

### SPECIFY KEM TRANSPORT ENAMEL

HIGHEST QUALITY Kem Transport Enamels meet the most exacting finishing requirements for commercial vehicles.

SPECIALLY DEVELOPED for all types of transportation equipment—where a fast-drying sharp high gloss and durable finish are needed.

COMPLETE line ranges from thinners, rubbing compounds, primer-surfacers, right through to the famous Kem Transport Enamels. Primarily for spray application, these fast handling enamels give the best possible finishes in the shortest possible time!

THE SHERWIN-WILLIAMS Co.  
Cleveland 1, Ohio



# SHERWIN-WILLIAMS AUTOMOTIVE FINISHES





Capacities  
from 28 to 50 gallons

## EVERY GOOD TRACTOR OR TRUCK DESERVES A *Snyder* SAFETY TANK

- + ADD SAFETY, CAPACITY, DURABILITY
- SUBTRACT FIRE HAZARD, OPERATING COST
- = ANSWER THE SNYDER SADDLE AND CYLINDER SAFETY TANKS, THE LAST WORD IN TRUCK AND TRACTOR FUEL TANK CONSTRUCTION

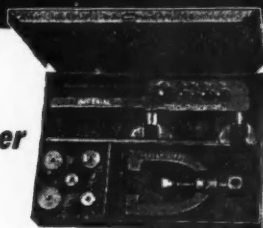
SNYDER MANUFACTURING CO., P. O. BOX 14, BUFFALO, N. Y.  
SNYDER TANK CORPORATION, P. O. BOX 2390, BIRMINGHAM, ALABAMA



Capacities  
from 75  
to 125  
Gallons

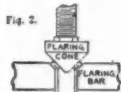
## IMPERIAL Double-Flaring Tool

... for  
steel  
and other  
metal  
tubing



● Ideal for brake, gas and oil line work. Overcomes tendency of welded steel tubing to crack when flared with ordinary flaring tool. First, tubing is belled, Fig. 1. Then flared in conventional manner, Fig. 2.

No. 93-FB Double-Flaring Tool complete in metal kit.....\$7.00



Order From Your Jobber

THE IMPERIAL BRASS MFG. CO.  
1209 W. Harrison St., Chicago 7, Ill.

## EDITORIAL

(CONTINUED FROM PAGE 37)

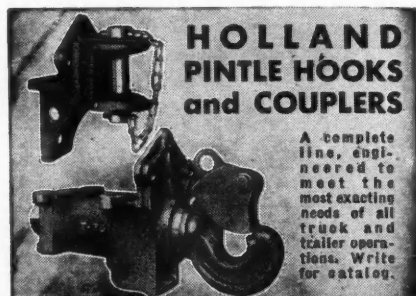
"weighs 2900 lb. and is built to carry 800 lb. of goods in addition to two men. It has a capacity of 20 miles at a 9-mile rate over city streets." The storage battery weighed 1000 lb. The job was built earlier that year because an item in the May, 1898, issue carried the news that Altman delivery wagon had been exhibited by Riker at the Electrical Exposition in Madison Square Garden and that it was "the model from which a larger number are to be furnished this enterprising merchant."

\* \* \*

After reading the above item this enterprising student of automotive archives dug into his accumulated notes and there found an item that caused him to wonder how the credit was accorded. The item he found showed that the *Horseless Age*, in its issue of August, 1897, had recorded the "recent" building of "two electric delivery wagons" by the American Electric Vehicle Co., of Chicago, for "Charles A. Stevens & Bros., a silk house of the same city." The report concludes with the statement that "Stevens & Bros. are said to have ordered four more wagons of the same style."

\* \* \*

Just how the Riker job for Altman rates being called the "first commercial electric delivery wagon," in the face of the above evidence, is something this writer cannot resolve. Perhaps the term (TURN TO PAGE 248, PLEASE)



## HOLLAND PINTLE HOOKS and COUPLERS

A complete line, engineered to meet the most exacting needs of all truck and trailer operations. Write for catalog.

HOLLAND HITCH COMPANY  
HOLLAND, MICHIGAN, U. S. A.

## DAYTON Spoke Type Steel WHEELS AIR-COOL BRAKE DRUMS AND TIRES

FOR TRUCKS, TRAILERS AND BUSES.  
THE DAYTON STEEL FOUNDRY CO.  
DAYTON, OHIO

The American Bantam Car Company proudly announces as its Pittsburgh distributor,

The Truck Trailer Sales & Service Company, located at 501-15 South Negley Avenue.

for their line of Supercargo Truck Trailers.

AMERICAN BANTAM CAR CO.  
BUTLER, PA.

### AIR-GO.

100% PETROLEUM PRODUCTS

Reduces maintenance and operating costs... results in more engine power, more mileage per gallon, less wear and repair, freedom from carbon formations, sludge, etc. Add to any motor oil.

**MOTOR TONIC**

Aids in reducing gasoline and oil consumption, prevents corrosion, assures cleaner top motors, reduces metal wear and loss, helps eliminate sticky valves. Complete details on request.

**GAS FLUID**

**ALLEGANY OIL CO.** 6130 S. La Salle St. Chicago 21, Illinois

*Wohlert has  
Water Pumps*

for

FORD - CHEVROLET - PLYMOUTH  
PONTIAC - OLDSMOBILE - BUICK

Wohlert

LANSING  
5  
MICHIGAN

CORPORATION

**BETTER than Ever Before**

Repower with

RAMCO

10  
up

PISTON RINGS

# PRIMED for PERFORMANCE ...ALWAYS with

## SINCLAIR Specialized Lubricants



**M**OTOR VEHICLES — whether they be trucks, buses, power shovels or automobiles—are forever “on call.” They should be ready to go ... on a moment’s notice ... with no question about performance under any emergency.

Proper lubrication can go far toward establishing operators’ peace of mind ... and economical maintenance. Make sure vehicles and machines are primed for performance *at all times* by lubrication throughout with Sinclair automotive oils and greases.

### SINCLAIR LUBRICANTS for Buses, Trucks, Construction and Quarrying Equipment

**OPALINE MOTOR OIL** ... for engines ... fortified with additives to resist oxidation, sludge, gum, and bearing corrosion.

**OPALINE GEAR LUBRICANT** ... with extreme pressure properties ... to meet all design load and speed demands.

**OPALINE CHASSIS LUBRICANT** ... a tough, sturdy lubricant that protects while it lubricates ... in spite of rain, snow and mud.

**SINCOLUBE** ... made especially for wheel bearing service. Won’t separate, harden, or thin out under varying driving and temperature conditions.

## SINCLAIR AUTOMOTIVE OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

JUNE, 1946

Use postage-paid card inserted at page 59 for free information on advertised products

247

**Cal-Van**  
**GARAGE TOOLS**

2 and 3 FINGER TYPE

CARBON SCRAPER  
LIGHT BULB PLIERS  
RING COMPRESSORS  
CREEPER CASTERS  
BUSHING REMOVERS  
REAMERS

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## EDITORIAL

(CONTINUED FROM PAGE 246)

"commercial" is the determining factor. Perhaps Riker offered a line of models, one of which was sold to Altman. Perhaps the American Electric Vehicle job was a "special" built solely for Stevens and not offered as a model. Perhaps it should be assumed that the Horseless Age knew what it was talking about when it gave credit to Riker. There is no evidence in subsequent issues that the verdict was disputed.

\* \* \*

Credit for the "first commercial gasoline delivery wagon in the U. S." is given by *The Horseless Age* to the Winton Motor Carriage Co., Cleveland, Ohio. A photograph of the wagon is shown in the October, 1898, issue. It had pneumatic-tired, wire-spoked wheels and a single-cylinder horizontal engine. The descriptive item says that "The Winton Co. now have three styles of vehicles on the market—a phaeton, a two-seated carriage and a

(TURN TO PAGE 250, PLEASE)

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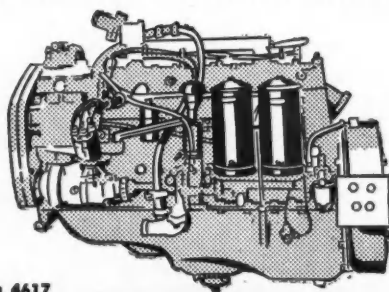
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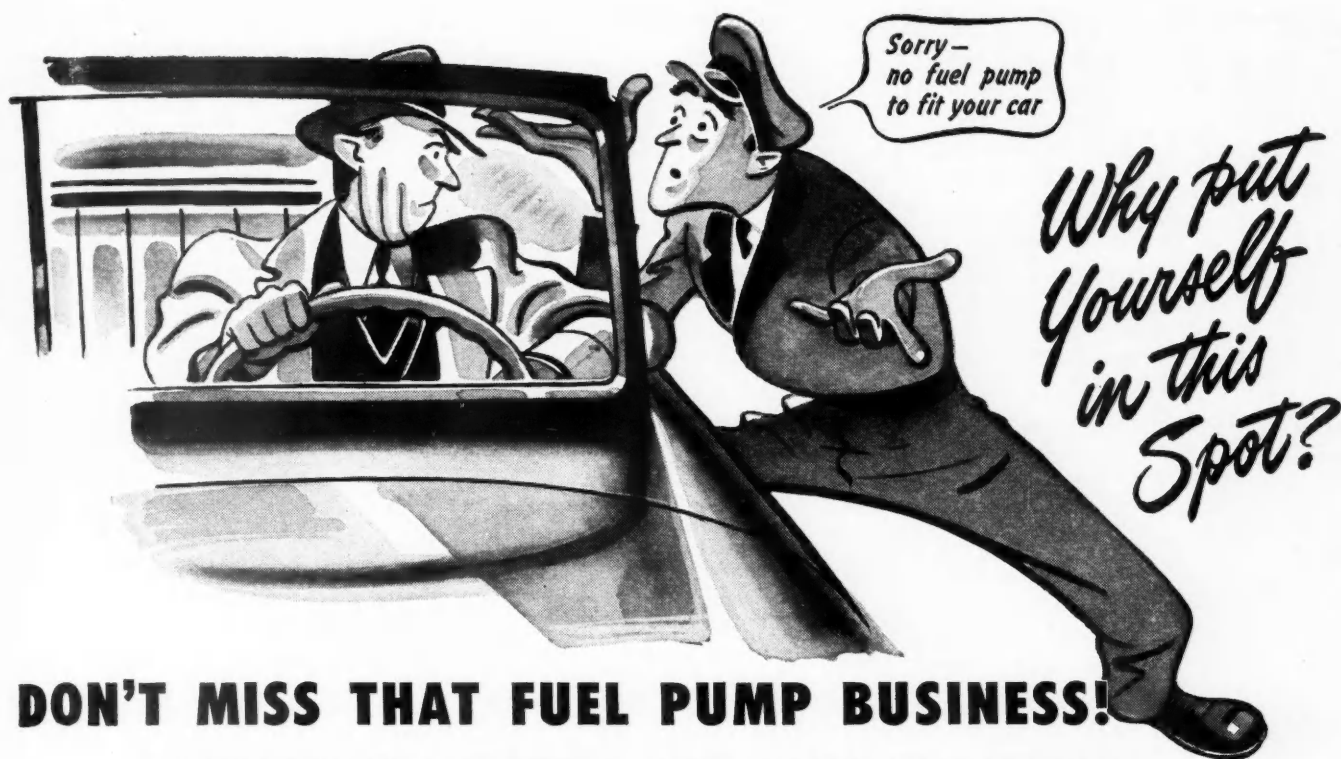
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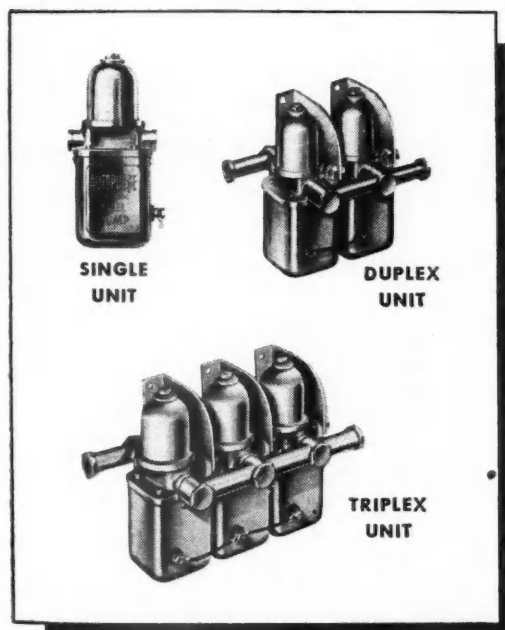




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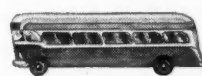
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## EDITORIAL

(CONTINUED FROM PAGE 248)

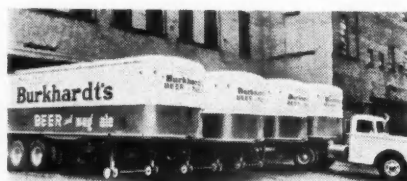
delivery wagon, the first commercial gasoline delivery wagon manufactured in this country." Of the delivery wagon it was said that "eight are now in course of construction."

\* \* \*

Based on the above evidence the commercial manufacture of motor trucks dates back to 1898. The truck industry, if it elected to do so, would be amply justified in celebrating its Golden Jubilee in 1948.

**END**

(Please resume your reading on p. 38)



The Burkhardt Brewing Co., Akron, Ohio, has adopted a new plan to expedite transportation and deliveries. With the installation of a new fleet of Fruehauf Trailers (two trailers for every tractor) shipments have been speeded up, since the driver merely "drops" his trailer, leaves it to be unloaded and returns to the plant with another trailer loaded with empties. The plan, according to the Burkhardt officials, saves time in transit, saves lay-over time, cuts loading and unloading and results in better customer service

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